TELEPHONE ENGINEER & MANAGEMENT

the telephone industry magazine

APRIL 1, 1961
Price 50c

A TE&M Report on Space Communications

By Fred Henck and Tom Malia

Letter To A Potential Operator

By D. A. Perigo

Method of Measuring Return Loss

By C. D. Ehinger

Industry Observations

By L. A. Gritten

Telephone Industry Newsletter

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Telephone Industry News Reports

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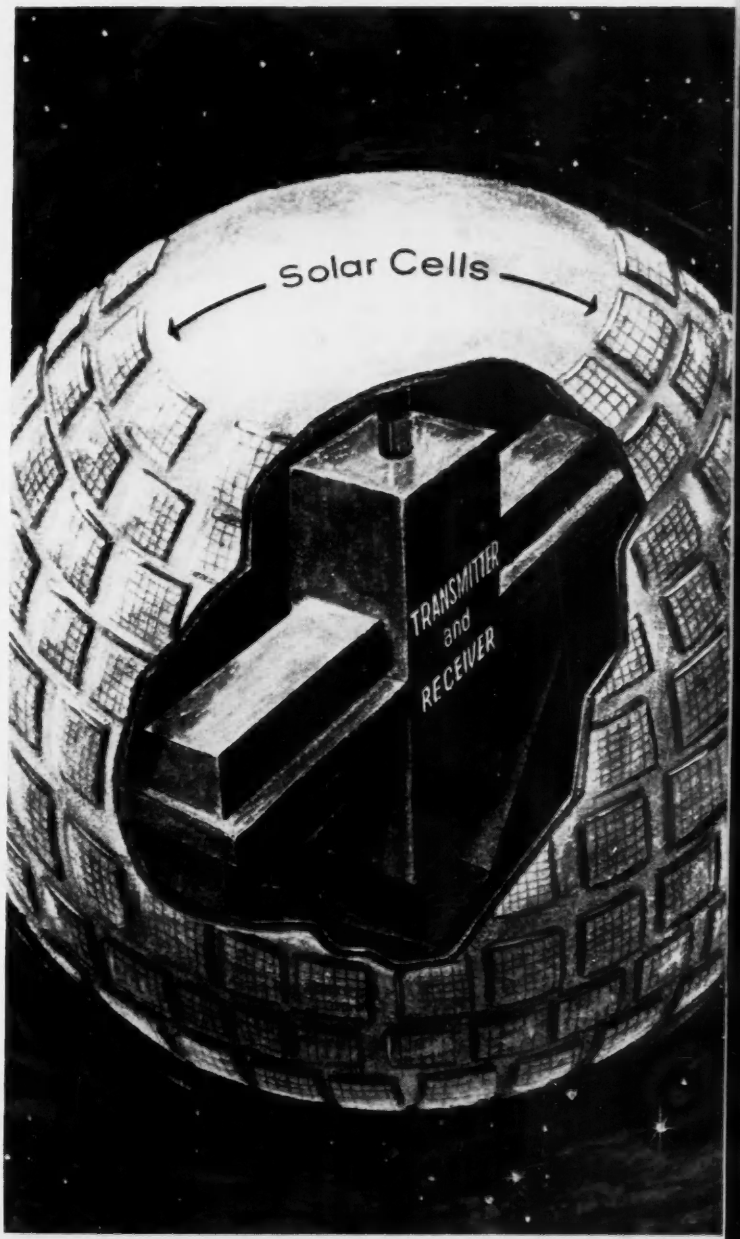

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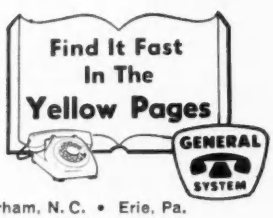

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THE TE&M FRONT COVER

Front Cover photo shows an artist's concept of the cross section of an active repeater. About 50 of these satellites would be placed in random polar orbits at a height of about 3000 miles above the earth. See page 31 for TE&M's report on "Space Communications."

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by MANY TRADE NAMES

You are looking at the king-sized product catalog in the Lindsay Telephone Supply sales offices. It contains over 2000 items including WIRE—CABLE—ACCESSORIES—GALVANIZED STRAND—POLE LINE HARDWARE—TELEPHONE CORDS—you name it, we've got it.

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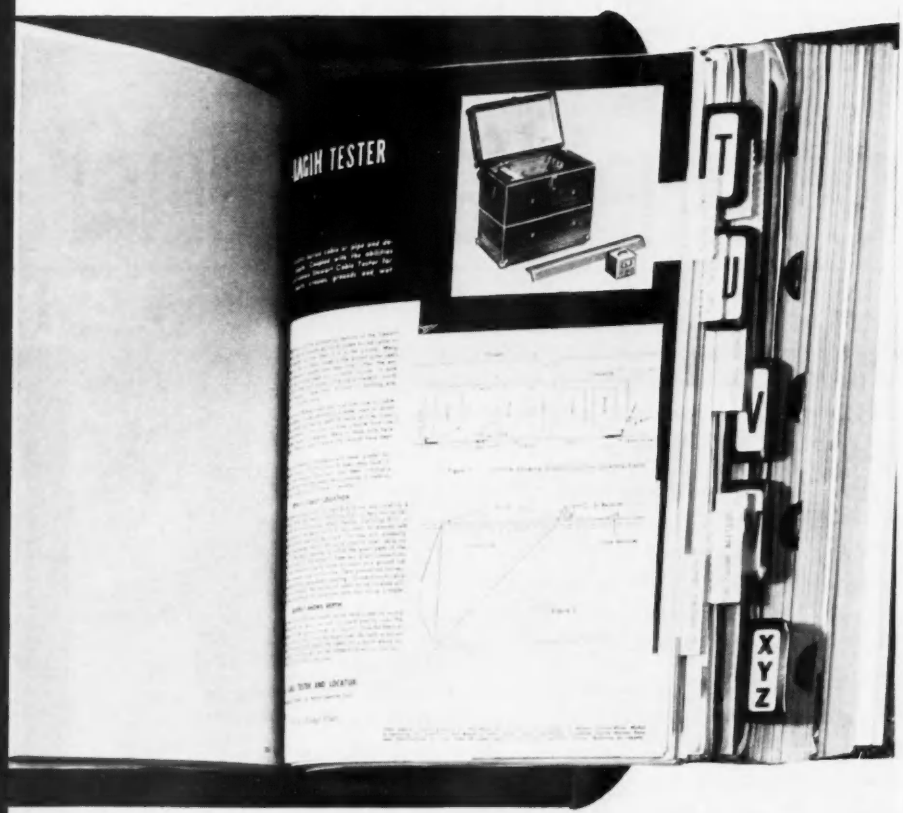
Add them all up . . . broad line—product knowledge—super service in a hurry—and, of great importance, adequate warehousing facilities.



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new TYPE 60 loading coil offers greater

Meet AE's new *stock* Type 60 Loading Coil. It's a high-voltage loading coil—at least 10kv's DC between windings—for use with today's plastic cable and designed to meet REA specifications. Type 60 brings you these two important benefits:

FLEXIBILITY! Type 60 gives you greater flexibility in adding to outside plant. You can order a single Type 60 from stock to meet your exact needs. Or, you can order it from stock in multiple-coil assemblies for cable splice, terminal or housing mountings. Also available from stock in larger assemblies of 25 to 150. These assemblies are enclosed in steel or lead cases with 10′ plastic cable stubs.

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New Type 60 Loading Coils are another way for you to provide top transmission standards for present-day outside plant. Whatever your needs for better transmission—whether it's loading coils, repeaters or cable—*AE has it!*

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GENERAL SYSTEM

Single Type 60 Loading Coil with high permeability core. Individually potted in a moisture-resistant resin shell.

Lead cased assembly for strand, pole or burial installation. Available with 25, 50, 75, 100, 125 or 150 coils. Can also be ordered in steel cases for pole or burial installation.

flexibility, faster installation

Multiple-coil potted assembly mounted in splice case. Available in multiple-coil assemblies of 3, 6, 12, 18 and 25 for splice case mounting.

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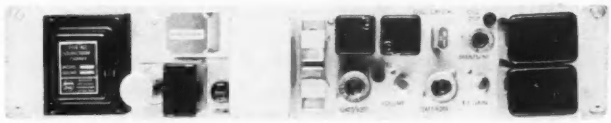

Now you can provide **private line** service OR **two-party** service with **selective ringing**—with only ONE subscriber carrier channel.

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CONVENTIONS

OHIO Tel. Assoc., Deshler Hilton Hotel, Columbus, Ohio, April 18-19.

WISCONSIN Tel. Assoc., Plankinton House, Milwaukee, Wisc., May 2-3.

INDIANA Tel. Assoc., Claypool Hotel, Indianapolis, Ind., May 10-11.

ILLINOIS Tel. Assoc., Pere Marquette Hotel, Peoria Ill., May 17-19.

KANSAS-MISSOURI Tel. Association, Continental Hotel, Kansas City, Mo., May 22-23.

PENNSYLVANIA Tel. Assoc., Pocono Manor Inn., Pocono Manor, Pa., June 5-7.

NATIONAL Safety Council's Public Utilities Section, Executive Committee, Laurentien Hotel, Montreal, Quebec, Canada, June 13-14.

WASHINGTON-OREGON Tel. Assoc., Empress Hotel, Victoria, B. C., June 15-16.

NEW YORK Tel. Assoc., Scaroon Manor, Schroon Lake, N. Y., June 19-21.

CALIFORNIA Tel. Assoc., Hawaiian Village, Honolulu, Hawaii, June 26-30.

ALASKA Tel. Assoc., Hotel Not Announced, Palmer, Alaska, Aug. 21-23.

MICHIGAN Tel. Assoc., Pantlind Hotel, Grand Rapids, Mich., Sept. 19-21.

NEVADA Tel. Assoc., Stockmens Hotel, Elko, Nevada, Sept. 19-21.

ROCKY MT. Tel. Assoc., Owyhee Hotel, Boise, Sept. 20-22.

USITA CONVENTION, Conrad Hilton Hotel, Chicago, Ill., Oct. 8-11.

FLORIDA Tel. Assoc., The Carillon Hotel, Miami Beach, Fla., Nov. 26-28.

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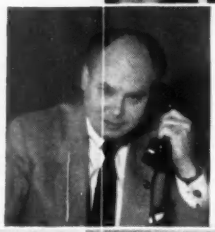

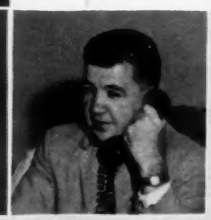

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It's true! Telephone companies are selling Leich PABX's at a rate of about 100 a month. Leich's exclusive features are the reason why.

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NEWSLETTER TELEPHONE INDUSTRY

Prepared By The Editorial Staff of TELEPHONE ENGINEER and MANAGEMENT

ON THE 1st OF EACH MONTH ★ ON THE 15th OF EACH MONTH

Dear Sir: April 1, 1961

POST OFFICE DEPARTMENT CALLS HALT TO 'SPEED MAIL' PROGRAM . . . . Post Office Department has concluded that "speed mail" (facsimile transmission) service would be too costly to operate & would also duplicate services provided by private enterprise, so it is abandoning project launched several years ago by former Postmaster General Arthur Summerfield, it was announced last month by his successor, J. Edward Day.

Since taking office, Day has indicated no great enthusiasm for speed mail program & his announcement, at press conference in Chicago, came as no surprise. A spokesman for department in Washington added that speed mail was being dropped because it is considered not ready for public use, & policy of Post Office is not to engage in "long range research." The official added that contracts awarded during previous administration for work on program amounted to about $4,500,000. Of this amount, $170,000 was for leased line services in connection with experimental operation of service between Washington, Chicago, and Battle Creek, Mich. As far as equipment which Post Office acquired in connection with program, official said "We are studying that problem and contacting other agencies of the government to see if they can use it." Value of the hardware "is relatively small," he added, with the bulk of the costs going into research, engineering, and labor.

Speed mail program has been subject of controversy ever since it became known in fall of 1959 that Post Office was conducting experiments with it. Some questions were raised about the competitive aspects of such a service with private industry. One of the severest critics of program has been E. L. Hageman, pres. of Western Union Division of Commercial Telegraphers' Union, labor organization which represents bulk of Western Union Telegraph Co. employes. President Walter P. Marshall of Western Union also expressed fears about competition of government-subsidized service in exchange of correspondence with Mr. Summerfield.

NEW YORK TELEPHONE AND DOWNSTATE TRAFFIC UNION AGREE ON NEW CONTRACT . . . , New York Tel. Co., & Telephone Traffic Union, which represents some 15,000 traffic employes in company's Downstate Area, reached agreement last month on new three-year contract which provides general wage increases of $2 to $2.50, and increases at starting rate for operators of $3, and for clerks of $3.50. Agreement also provides for extraordinary medical expense plan, improvements in group life insurance & minimum pension provisions, & four weeks vacation after 25 years of service. Company estimated new contract will add $3,000,000 a year to its operating costs.

CWA DEFEATS UTO in NLRB ELECTION OF NEW YORK TELEPHONE DOWNSTATE AREA PLANT EMPLOYES . . . . Communications Workers of America has defeated United Telephone Organizations in National Labor Relations Board runoff election to become collective bargaining agent for 18,000 plant employes in Downstate Area of New York Tel. Co. Results of contest between two unions announced by NLRB, subject to certification, March 14, gave CWA 8156 votes to 7700 for UTO, which had represented downstate plant group in New York company since 1937. NLRB voided 146 ballots,

Please turn to page 14

compare cost, design and installation time

ACHIEVERFONE

AChieverfone combines low cost, reliability, advanced design and fast installation, giving you and your customers the most outstanding mobile radiotelephone on the market.

Start with cost. Instead of three or more units, AChieverfone has only two units: the control head and the R-T unit. This means AChieverfone costs less than other systems.

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RF output: 22.5 watts into 52 ohm load

Receiver: 144-174 Mc, 4-Channel
Wide Band (60kc) or Narrow Band (30kc) models available (Bands quickly converted to Narrow or Wide by substituting IF filter)

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Weight: 37.25 pounds, including receiver-transmitter, control head and cable

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HE'LL TELL YOU WHY RYCOM FREQUENCY SELECTIVE VOLTMETERS ARE BETTER!!!

2174A

SPECIFICATIONS					
MODEL	FREQUENCY RANGE	SELECTIVITY	LEVEL FULL SCALE	ACCURACY	TYPICAL FILTER SELECTIVITY
2171	60 Cycles to 4 Kilocycles	30 Cycle or 50 Cycle Filter	−68 to +32dbm	± .5db −80 to +32dbm 300 Cycles to 4 Kilocycles	30 CYCLE FILTER 6db— 35 Cycles 60db—250 Cycles
2174A	300 Cycles to 400 Kilocycles	50 Cycle or 100 Cycle Filter*	−68 to +32dbm	± .5db −80 to +32dbm 300 to 400 Kilocycles	50 CYCLE FILTER** 6db— 60 Cycles 60db—450 Cycles
SPURIOUS RESPONSE: Below 60db LOW INTERMODULATION: Below 60db POWER REQUIREMENTS: 115 V. A.C.—50/60 Cycles. WEIGHT: 28 lbs.					100 CYCLE FILTER (STANDARD) 6db—140 Cycles 60db—900 Cycles

* Including a wider filter and demodulator for monitoring SSB, AM and FM signals.

This instrument utilizes the heterodyne principle with balanced modulation and highly selective crystal filters which achieve the high resolution needed for accurate amplitude measurements of Carrier and Microwave Sub Carrier channels. Direct reading in DBM for 135 and 600 ohm circuits or bridging. Offers fast accurate amplitude measurements throughout the frequency spectrum of 300 cycles to 400 kc. PRICE: $795 F.O.B. RAYTOWN, MISSOURI.

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You'll find the sections on mechanical design, user requirements, and technical information truly unique in their concept. Even in the basic sections such subjects as binary arithmetic, Laplace transforms, and an extensive article on servo theory combine much original material of special interest to the electronic systems engineer.

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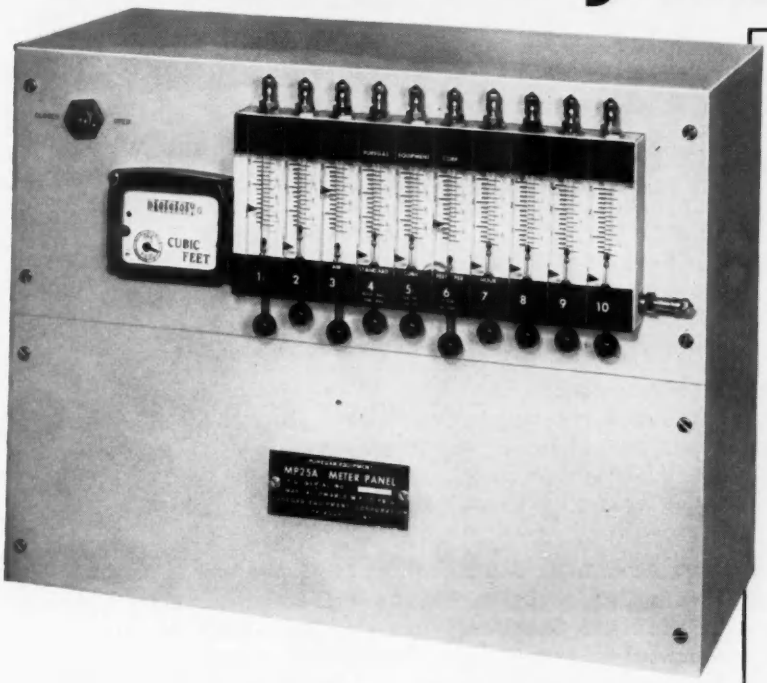
Pressurize your cables



Metering Panel of the PUREGAS Continuous Feed Pressure System. The panel monitors and distributes the flow of pressurized air from the PUREGAS Air Dryer to toll, trunk and exchange cables . . . measures the flow delivered to groups of cables or to individual cables . . . provides convenient central instrumentation.

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Toll, trunk and exchange cables all have longer service life and cost much less to maintain when they are:

1. pressurized with dry air supplied through PUREGAS equipment;
2. supplemented with GENERAL MACHINE PRODUCTS accessories.

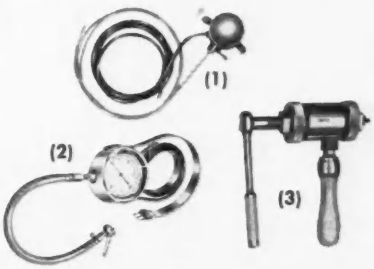
PUREGAS equipment at a central location feeds a continuous supply of dry air under pressure into the cables . . . to keep moisture from reaching the conductors. As air is lost through the minute breaks that usually occur in older cable sheaths it is replaced automatically by dry air from the PUREGAS Air Dryer and Compressor.

Serious breaks along the line, however, cause excessive leakage of air, and are indicated on the PUREGAS Metering Panel.

Using GMP accessories, repairmen then pinpoint location of the breaks—by noting differences in air *pressure* at selected points—and make repairs, usually during normal working hours.

Pressurize to minimize outages . . . to lengthen cable life . . . to cut maintenance costs. PUREGAS and GMP equipment is distributed nationally by GRAYBAR.

Get complete information. For these descriptive folders, phone your nearby Graybar Representative. Or write to Graybar in New York.



GMP Pressure Testing Contactors (1) located at strategic points, monitor pressure throughout the system and aid in detecting leaks. *Pressure Testing Gauges* (2) give precise measurements of pressure. *Pressure Guns* (3) inject compound into cable to make pressure plugs. These, as well as Pressure Testing Ells, Drills, Depressors, Sealing Compound and other tools for pressurized systems, are made by General Machine Products Company and are available via Graybar.

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(concluded from page 10)

& five were challenged. Runoff between two unions was required when they led balloting in earlier election this year. At that time, UTO received 6396 votes, CWA 5684, & International Brotherhood of Electrical Workers 2142. Under NLRB rules, in election where no union receives majority of votes, runoff will be between only two receiving the most votes.

CWA victory was one of historic proportions in eyes of labor unions. For CWA, it was first time that it has been able to succeed, in number of efforts, to win large bloc of plant workers in Bell System company in industrial northeastern part of country. It was also greatest gain for CWA, numerically, since 1940s, & it has also produced most sizeable gain for AFL-CIO in any industry since merger of two labor organizations five years ago.

CWA Pres. Joseph A. Beirne described victory in downstate New York as "real breakthrough" & carrying "implications for future growth" of union. "And this union will renew its organizing activities in the north and northeast with the expectation that within five years 150,000 additional employes of the Bell System will be represented by the CWA," the union official added.

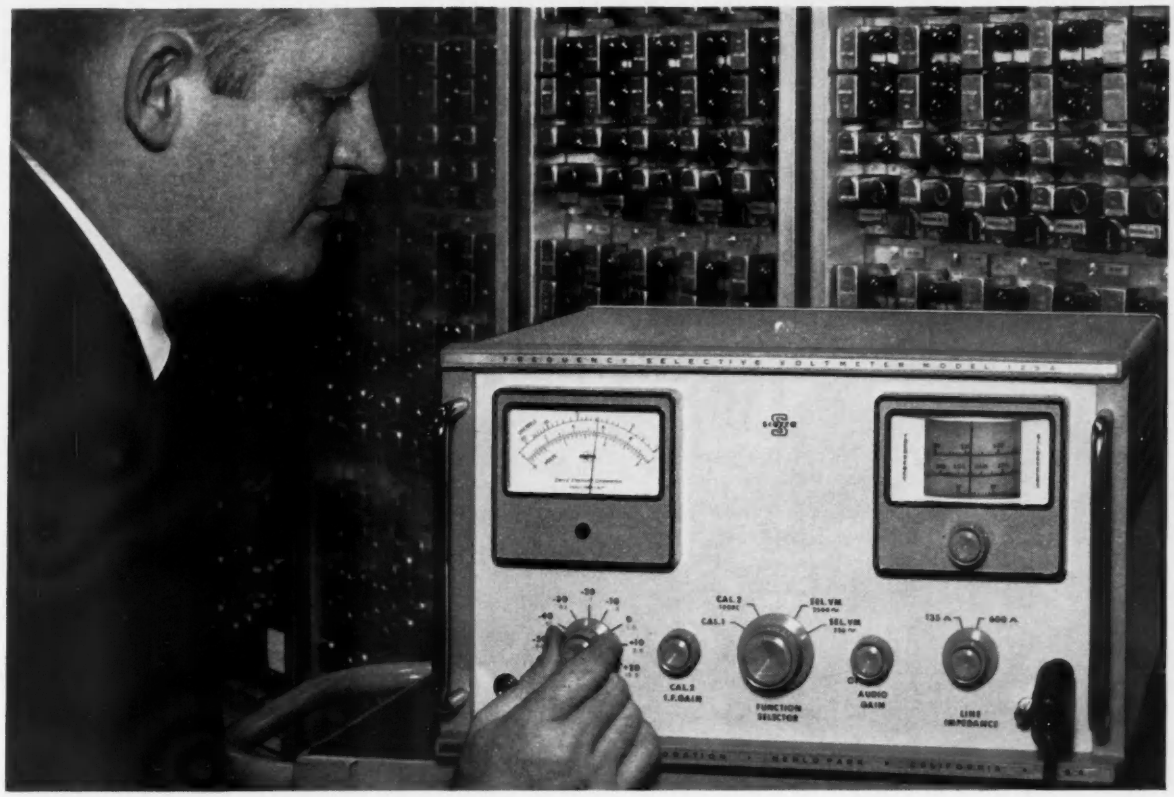
USITA PLANS MARKETING SEMINAR . . . Marketing Committee of U. S. Independent Telephone Assoc. (USITA) will conduct Telephone Marketing Seminar for members of Independent Telephone Industry at Michigan State University, East Lansing, Mich., July 16-23. In report to member companies issued last month, USITA Marketing Committee Member Earle G. Bellamy, Knoxville, Ia., stated "Telephone Marketing Seminar has been conceived & designed as seminar for top telephone management people."

According to Bellamy, seminar is not intended to be "discussion of 'How To Sell,' but is designed to give top management an understanding of effective marketing & a desire & ability to encourage a broad marketing program in their own companies."

Course is to be presented by "people selected from university staffs & private industry." Only limited number of applicants can be accepted on "first-come, first-served basis," provided they meet management qualification criteria. Application blanks were mailed Mar. 15 to USITA members.

(Editor's Note: — See page 78 March 1, TE&M for information on USITA's Management Development Program & 5th Annual Telephone Engineering Conference.)

TELEPHONE INDUSTRY HIGHLIGHTS . . . . Mrs. PATRICIA SIEMEN, who served as confidential assistant to former FCC Chairman JOHN C. DOERFER during virtually all of his FCC tenure, and until last month in same capacity for retiring Commissioner CHARLES H. KING, joined White House staff. Mrs. Siemen will work with CARMINE BELLINO, special consultant to President Kennedy & to Bureau of Budget . . . . JEFFERSON DAVIS, general counsel of Southern Bell Tel. & Tel. Co. since 1956, became vice pres. of company last month. He has been with Southern Bell since 1947, first as attorney & then from 1949 to 1952 as general attorney. In 1952 he became general solicitor for company . . . . Increase in quarterly dividend paid by ILLINOIS BELL TEL. CO. has been declared by company's board of directors. Board declared quarterly dividend of 48 cents per share payable Mar. 31 to shareowners of record March 10. In previous quarter; dividend of 44 cents a share was paid.



Why is the Sierra Frequency Selective Voltmeter the standard of the communications industry?

Performance-proved by thousands of users! • Accepted by all major carrier systems manufacturers, specified by most! • Uniquely convenient, versatile, dependable for monitoring carrier modulation level!

- Single frequency band, one continuous tuning range—eliminates band switching
- Flat voltmeter section—for accurate measurement, easy detection of spurious signals
- Wide bandwidth—1 to 620 kc—covers 120 channels per L carrier allocation
- Coarse, fine tuning on a single knob—for greater convenience
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- Dual selectivity—versatility for communications test, wave analysis, general lab use

SPECIFICATIONS
MODEL 125A

Frequency Range
Tunable Mode: 3 kc to 620 kc
Flat Mode: 1 kc to 620 kc

Measurement Range
Tunable Mode: —90 dbm to +32 dbm
Flat Mode: —30 dbm to +32 dbm

Selectivity
Narrow: Down 3 db 125 cps off resonance; down 45 db 500 cps off resonance
Wide: Down 3 db 1.25 kc off resonance; down 45 db 5 kc off resonance

Price $895.00, f.o.b. factory

Call your Sierra representative or write direct. Sierra Model 125B-CR, with upper and lower sideband carrier re-insertion, and Model 125B-Y, with patchcord connections for type "O" and type "N" Western Electric carrier, also available at additional cost.

Data subject to change without notice.

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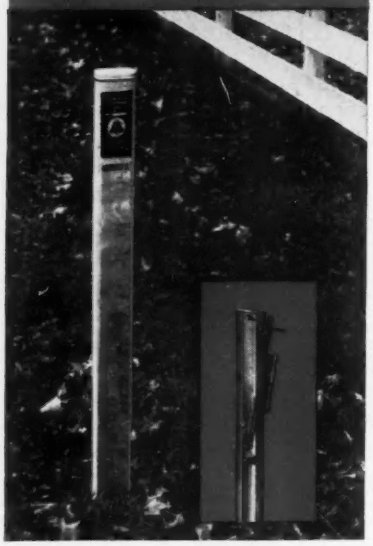
HOUSINGS
For Buried Wire & Cable



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Installation

You can save time and labor by specifying INDIANA Terminal Housings for your buried wire and cable jobs. The heavy No. 10 gauge steel stakes of the pedestal type can be driven into the ground. The cover plate can be attached or removed with ONE screw. All models are designed for ease in mounting terminal blocks and loading coils and in making splices or connections.

INDIANA Terminal Housings are heavily galvanized AFTER forming for longer life. Available in both pedestal and pole-mounted types and in four models capable of accommodating from one pair to 400 pairs.

Ask your distributor of telephone supplies or write for Bulletin No. TH-101R.

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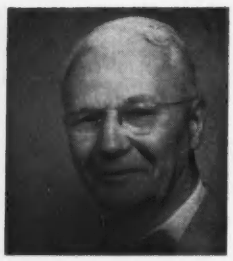
Muncie, Indiana



INDUSTRY OBSERVATIONS

By L. A. GRITTEN

Laws, Laws, Laws

MR. BUMBLE, in Dickens' "Oliver Twist," remarked: "If the law supposes that, the law is a ass, a idiot." Lest you should disagree with that verdict, consider:

The U. S. Supreme Court has ruled that wire-tap evidence may be used in criminal trials in State courts, although it is barred in federal courts, thus converting a messy chaos into a chaotic mess.

And the Colorado Supreme Court has ruled that a telephone booth is a building, defined as "a structure which has the capacity to contain man or animals or habitation or shelter." We can hardly wait to move into one.

Race To Learning

ONE more indication of the dizzy speed of our scientific progress: A new publication is *Index Chemious*, issued by Eugene Garfield Associates, 1122 Spring Street, Philadelphia. It lists *newly discovered* chemical compounds — and it is published monthly!

More For Less, Forever?

THE One Hundred Days have nearly run their course. "The tumult and the shouting dies" — and the Captains and Kings depart painfully from their pre-election commitments. After all, one cannot forever belie facts; and diverse economic trends don't give a tinker's dam about campaign oratory.

One item: From 1947 to 1959, payments to employes in private industry were doubled (farm work excluded). In the same period, the output of non-farm goods and services increased only about fifty per cent.

That disparity between what we pay and what we produce grows wider with every passing month. So long as trade unions ruthlessly demand, and employers weakly concede, annual "across the board" wage increases regardless of production, that gap will widen and widen and widen until . . . . Oh, well, some future Gibbon may write: "They enjoyed a wonderful time while it lasted."

"In A Fine Frenzy Rolling"

JUDGE J. Cullen Ganey became famous when he fined 29 electrical corporations and 44 of their officials a total amount of $1,924,500, and sent seven of the executives to jail. However, the claims that this case is the biggest of its kind in legal history call for rebuttal.

By long odds, the record for heavy fines was achieved in 1907, by Judge Keneshaw Mountain Landis, who afterwards became the first commissioner of organized baseball. Landis sentenced one corporation, Standard Oil of Indiana, to fines aggregating $29,240,000, for shipping 1462 cars of petroleum products at "arranged" rates, less than the regular railroad tariff. (The maximum fine was $20,000 per car.) However, a year later the U. S. Circuit Court of Appeals reversed the decision.

Neglected Education

THE Management Development Program at the University of Kansas, sponsored by the U.S.I.T.A., is splendid training for the chosen few who have already made their mark as prospective leaders. That sort of education can hardly be overdone.

There is another urgent educational requirement. What you now hold in

INTRODUCING

SEMPER • SEAL

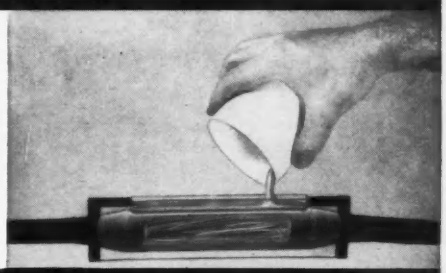
the new clear cable splice and plugging compound

- A new, clear, two-part formulation
- Provides perfect cable encapsulation
- Forms a secure, weather-gas-tight seal
- Flexible, crack-resistant compound
- Low exotherm and fast setup
- Withstands pressures exceeding 35 lbs.
- Controlled pot life
- Controlled cable penetration

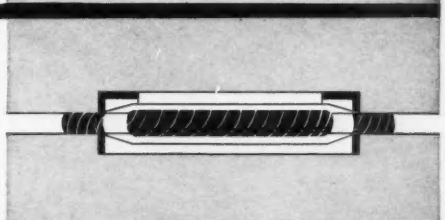
Semper-Seal, a new epoxy-type resin incorporating the advantages of proven durability, weather-tight sealing and transparent clarity for perfect cable encapsulation. The simple to use and transparent qualities of Semper-Seal enables field splices and blocks to be accomplished and inspected in a minimum of time with the visible assurity of knowing a solid seal has been made. Semper-Seal is a two-part compound consisting of a resin and hardener which when mixed together create a thermosetting action. The compound, through its own chemical change will, in 30-45 minutes, become a solid, clear, air-tight seal.

Write today for complete information on NEW Semper-Seal.

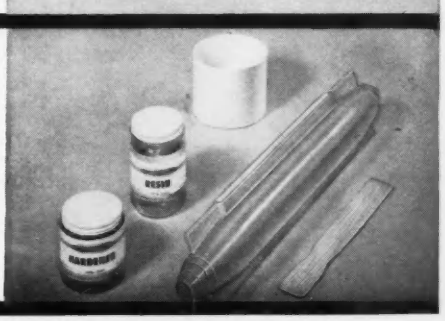
C & S PRODUCTS COMPANY
Windsor Locks, Connecticut



Semper-Seal being poured into the plastic Vu-Mold which has been tape-sealed over the cable opening.



Semper-Seal provides an ideal means of forming trouble splices on pressurized cables.



Semper-Seal is available in convenient kits or in bulk form.

Superior's

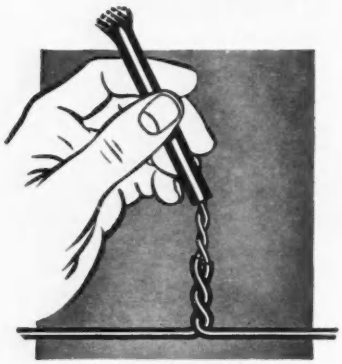
"Super-Splice"®

is

safe

and

sure!



"Super-Splice" makes splices waterproof . . . from inside out!

Sealed at one end, this plastic splice sleeve is filled with an insulating and waterproofing compound.*

Economical "Super-Splice," a Superior exclusive, makes the splice permanently as good as the cable . . . yet it can be re-entered easily. The compound never hardens or oozes out no matter what the temperature.

Prevent leakage currents and breakdowns in the presence of moisture...good for 25,000 v.d.c. Order "Super-Splice" NOW!

*A Dow-Corning silicone compound.

An REA Standard.

"Super-Splice" is available for use with straight, butt or bridge splices.

For further information on economical "SUPER-SPLICE", write

SUPERIOR CABLE

SUPERIOR CABLE CORPORATION
Hickory, North Carolina

your hand is one answer to it. This magazine offers all-round general education in our business, but it is not read by enough of the people who have most to gain by reading it, the rank and file of the employes in your company. Whatever training they may now receive in their particular work, the general education afforded by a good trade magazine will broaden and benefit them. In many cases it may serve to change the apathy of the man whose interest in life begins at 5 p.m., into the development of a keen and ambitious worker.

The difference between what your company now spends in giving *Telephone Engineer & Management* to a few executives, and what it would cost to mail it to everyone on your payroll amounts to only a few cents per employe per diem. It could be the best investment your company ever made.

Machine Begat Machine Begat

THE latest threat to humanity comes from Bell Laboratories. It is an automatic process known as "BLADES" (Bell Laboratories Automatic Design System), by means of which one computer has actually designed another one, resulting in the NIKE ZEUS digital computer used by the U. S. Army to track ballistic missiles.

That brings us a step nearer to the grisly future suggested by Dr. Norbert Wiener of Massachusetts Institute of Technology, the creator of "cybernetics." He has stated that there is no theoretical reason why we cannot ultimately build a machine that will be able to build a better substitute for itself, improving on its own design.

The inevitable outcome will be the day when machines shall utterly dominate all human life. If we had good sense, we would smash the infernal things now, before it is too late. —

Cop-Baiting

"A POLICEMAN'S lot is not a happy one," sang the sergeant in Gilbert & Sullivan's "Pirates of Penzance." The Washington State Patrol may be inclined to agree. Some malevolent Puget Sounder delights to dial the Patrol number; then, without saying a word, he leaves the phone off the hook and walks away. He does this many times, from booths stores or anywhere that cop-baiting seems like good clean fun.

The telephone people think they know who he is; but apparently Washington State laws do not definitely cover this exasperating trick — and, of course, an unsuccessful legal action would merely invite a lot of other humorists to join in the sport.

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USE THIS PERSONAL ORDER FORM

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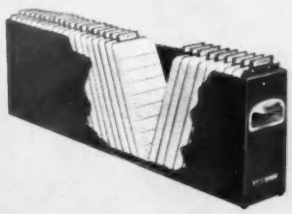

ASSIGNMENT-REPAIR DESK conveniently centralizes cable, terminal and line card records. Saves waste motion and affords generous desk-top work surface.

COMPACT TUBULAR STAND This space-saving unit handles up to 3000 stations. Provides convenient sliding work shelf. Rolls on ball-bearing casters.

ACME VISIBLE Telephone Record Systems speed installation and repair service

Today, with a record number of telephones in service—and with continued heavy station growth—efficient paper work and quick reference systems are vital. Many central offices have upped their efficiency by using Acme Visible Systems, designed in partnership with telephone operations experts.

ACME VISIBLE

Serving all departments of telephone companies
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Please give me information on your systems for telephone records.
We have _____ line cards and _____ cable and terminal records.

NAME_____ TITLE_____
COMPANY_____ ADDRESS_____
CITY_____ ZONE____ STATE_____

ITT **KELLOGG** brings you

NEW REMOTE CONTROL FEATURES

RECORDING. Announces in your own voice any message up to three minutes, which you want your callers to receive. Amazing remote control signal lets you change your announcement message from any outside telephone as often as you like.

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DICTATION. Use CODE-A-PHONE as dictation machine in the office or from any outside telephone. Eliminates need for separate office dictation machine. Frees you from taking any dictating machine home or on business trips.

DISTRIBUTED TO THE INDEPENDENT TELEPHONE

the amazing

NEW TELEPHONE DICTATING, RECORDING AND ANSWERING MACHINE INDEPENDENTS HAVE WAITED FOR

the totally automatic

Code-a-phone®

WITH REVOLUTIONARY CODE RELAYS THAT PERMIT SUBSCRIBER TO

- TELEPHONE-IN NEW ANNOUNCEMENTS
- HEAR MESSAGES FROM OUTSIDE
- DICTATE—EVEN BY PHONE
- FILE PHONE CONVERSATIONS

NOW you can offer your subscribers a top quality telephone answering device that meets telephone company standards—and at a price everyone can afford. Unique code relay permits user (and ONLY the user) to call in new announcement messages or play back messages. Lifelike sound. Special tape cartridges can be kept on file. Models for every application, every size company.

NEW VERSATILITY

CONFERENCE CALL CIRCUITS. Records conference calls including all incoming and out-going voices. Each office using CODE-A-PHONE has an immediate tape cartridge recording of the complete conference which can be transcribed or filed for future reference.

MONITORS CALLS. Monitors incoming calls so that you may interrupt machine and talk directly with any caller. Small built-in speaker lets you hear incoming voice and your recorded announcement while you work.

TRANSMITS MESSAGES. Transmits prerecorded message or reports to another person or distant CODE-A-PHONE. Tape cartridge provides permanent record of complete transmission.

INDUSTRY EXCLUSIVELY BY:

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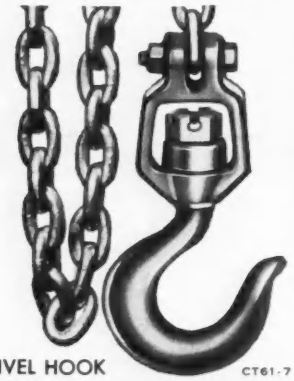
Attention: Marketing Department

CHANCE 1 TON HOIST

Mechanically simple and fast operating, it weighs only twelve pounds, free-wheels for easy load pick-up, and locks automatically to prevent dropped loads. Its handle operates from either side. The chain won't bind or kink. Precision gearing permits half or full link take-up. Controls can be worked when wearing gloves. And it has a 360° swivel hook that turns freely under full load. (A safety latch hook is optional.) It is proof-tested to 3000 pounds before leaving the factory. Ask the linemen why these features make it the linemen's choice. Linemen helped design it.

Chance also makes 2-ton hoists.
Order from your line equipment wholesaler.

A. B. CHANCE CO.
CENTRALIA, MISSOURI
A. B. Chance Company of Canada, Ltd., Toronto



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"Off The Board"

Communications Securities

Markets as of March 13, 1961	DIVIDEND	BID	ASKED	LAST SALE
American Tel. & Tel. Co.	$3.30			114⅛
Anglo-Canadian Tel. Co. (Br. Col.-Dom. Rep.)	1.20	49½	52½	
Bell Tel. Co. of Canada	2.20			49⅜
British Columbia Tel. Co.	2.20	49¼	52¼	
California Interstate Tel. Co. (Calif., Nev.)	.70	17½	19	
Calif. Pac. Util. Co. (Calif., Ore., Nev.)	.90	24½	27	
California Water & Tel. Co	1.36	32⅝	34⅝	
Carolina Tel. & Tel. Co.	1.60	43½	—	
Central Elec. & Gas Co.	1.20	32	34	
Central Tel. Co. (Minn., Ia., N. C.)	.88	28¼	30½	
Chenango & Unadilla Tel. (N. Y.)	1.20	26½	—	
Cincinnati & Suburban Tel. Co.	4.50	111	116	
Citizens Util. Co. (Calif., Pa.) "A"	stk. only	25	26¾	
Citizens Util. Co. (Calif., Pa.) "B"	.56	22	24	
Commonwealth Tel. Co. (Pa.)	1.00	23	25	
Florida Tel. Corp.	1.00	29	31	
General Tel. & Electronics Corp.	.76			29⅝
Hawaiian Tel. Co.	1.00	33¾	36¼	
Independent Tel. Co.	none	9¼	10¼	
Indiana Tel. Co.	.50	27	—	
Inter-County Tel. & Tel. Co. (Fla.)	.72+stk	28	31	
Inter-Mountain Tel. Co. (Va., Tenn.)	.80	19	21	
International Tel. & Tel. Corp.	1.00			57
Jamestown Tel. Corp. (N. Y.)	6.00	88	—	
LaCrosse Tel. Corp.	.80	15½	—	
Lincoln Tel. & Tel. Co. (Nebr.)	2.60	65	—	
Lorain Telephone Co. (Ohio)	1.40	32	—	
Middle States Tel. Co. (Ill.)	.80	31½	34½	
Mountain States Tel. & Tel. (Ariz., Colo., Mont., Tex.)	.90			33⅝
New England Tel. & Tel. Co.	1.72			50
North Carolina Tel. Co.	none	1¼	1½	
Northern Ohio Tel. Co.	2.00	63½	68	
Pacific Tel. & Tel. Co.	1.14			39¾
Peoples Tel. Corp. (Pa.)	4.00	100	—	
Pioneer Tel. Co. (Minn.)	1.00+stk	34	38	
Rochester Tel. Corp. (N. Y.)	1.00			26⅞
Southeastern Tel. Co. (Fla.)	1.00	26	28½	
Southern Nevada Tel. Co.	1.20	41	44	
Southern New England Tel. Co.	2.20	50½	53½	
Southwestern States Tel. Co. (La., Ark., Okla., Tex.)	1.28	30½	32¾	
Telephone Service Co. of Ohio "A"	.36	32	35	
Telephone Service Co. of Ohio "B"	.36	33	36	
Tidewater Tel. Co. (Va.)	1.40	26	—	
United Utilities, Inc.	1.60	52	54	
Virginia Tel. & Tel. Co.	1.00	20½	—	
West Coast Tel. Co. (Wash., Ore., Calif.)	1.28	31¼	33¼	
Western Union Telegraph	1.40			47½
Western Utilities Corp.	.36	11¼	12¼	
Western Light & Tel. Co., Inc. (Mo. Kans., Ia.)	2.40	57½	60½	

(Source of Market — DEAN WITTER & CO.)

IS THERE A BETTER TWO-PIECE TELEPHONE?

Yes! Built into today's N-541 phones are two new features that are definite customer benefits, definite user conveniences!

Item No. 1—North N-541 phones are now available with the industry's first Line Powered Lighted Dial! There's no extra cord to be plugged into an AC outlet. There is a softly glowing dial, with the light intensified when the handset is lifted. Location in the dark is positive and convenient—dialing is simple and easy.

The Line Powered Lighted Dial is a positive "user benefit"!

Item No. 2—North N-541 phones are now available with the industry's only Transistorized Electronic Tone Signal. No more harsh, raucous, strident, nerve-jangling bells—the North Tone Signal is soft, restful, musical. It means a quieter home or office—a far more pleasant announcement that "you are being called".

The Transistorized Electronic Tone Signal is a positive "user benefit"!

Add these two exclusive features to transmission and reception that meets the highest standards, compensating network, a dial that will give more efficient pulsing and outlast all others and you have the finest two-piece telephone on the market.

When you're ordering two-piece telephones—don't make a move without seeing the North N-541, in a full range of colors, for the phone that offers you, and your subscribers, two wholly new "user benefits"—further examples of customer oriented equipment from

THE DYNAMIC FORCE IN THE TELEPHONE INDUSTRY

NORTH ELECTRIC COMPANY

GALION, OHIO

NORTH

No. 1 in a series of factual presentations on North N-541 Telephones

This kit helps you sell your customers...

Here's a sure-fire selling tool for you! A professionally prepared kit that helps you clinch the rental of an ELECTRONIC SECRETARY® set . . . and keep it rented profitably month after month.

This promotional material is packed with every new ELECTRONIC SECRETARY set. Be sure that each subscriber leasing a set receives his kit and understands its function. It contains everything he'll need to take full advantage of his new business asset. There are mats to advertise in the local paper . . . spot announcements for radio or TV. There are postcards and bill stuffers to send to his customers . . . even a sheaf of publicity releases.

You can cash-in on this promotion by showing every prospect how the material will help him turn a 9-to-5 business into a 24-hour-a-day service . . . all with a minimum of effort on his part.

For more information about ELECTRONIC SECRETARY sets or for additional sales promotion material, phone or write either of your distributors.

and keep them sold on ELECTRONIC SECRETARY®

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distributed by

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427 West Randolph St. Chicago 6, Illinois

Why buy a jumbo ringer for a Petite phone ?

One size for all types of ringing.
Smaller, lower cost, rectangular shape.

Petite RINGER FOR THE Petite PHONE

This compact unit handles straight-line, all types of frequency ringing; it even provides tube space for superimposed ringing. If your requirement is for frequency ringing, this specially-designed PETITE* ringer is by far the smallest in the entire industry . . . rugged . . . dependable . . . miniaturized.

In fact, this combination of PETITE phone and ringer from this one source *is your most economical buy.*

With thousands and thousands of PETITE phones already in service from coast to coast, telephone men are proving that the new Stromberg-Carlson PETITE is truly the most desirable and—for them—the most profitable. Independents have accepted this design at the fastest rate in history. PETITE is the perfect extension for any room in any home; ideal as a main station, too. The ringer, in soft blue beige, is modern single gong with 2-position tone switch.

Make us back up our lower cost claims with facts and figures. Your Stromberg-Carlson representative is ready to meet your challenge. In Atlanta call TRinity 5-7467; Chicago: STate 2-4235; Kansas City: HArrison 1-6618; Rochester: HUbbard 2-2200; San Francisco: OXford 7-3630.

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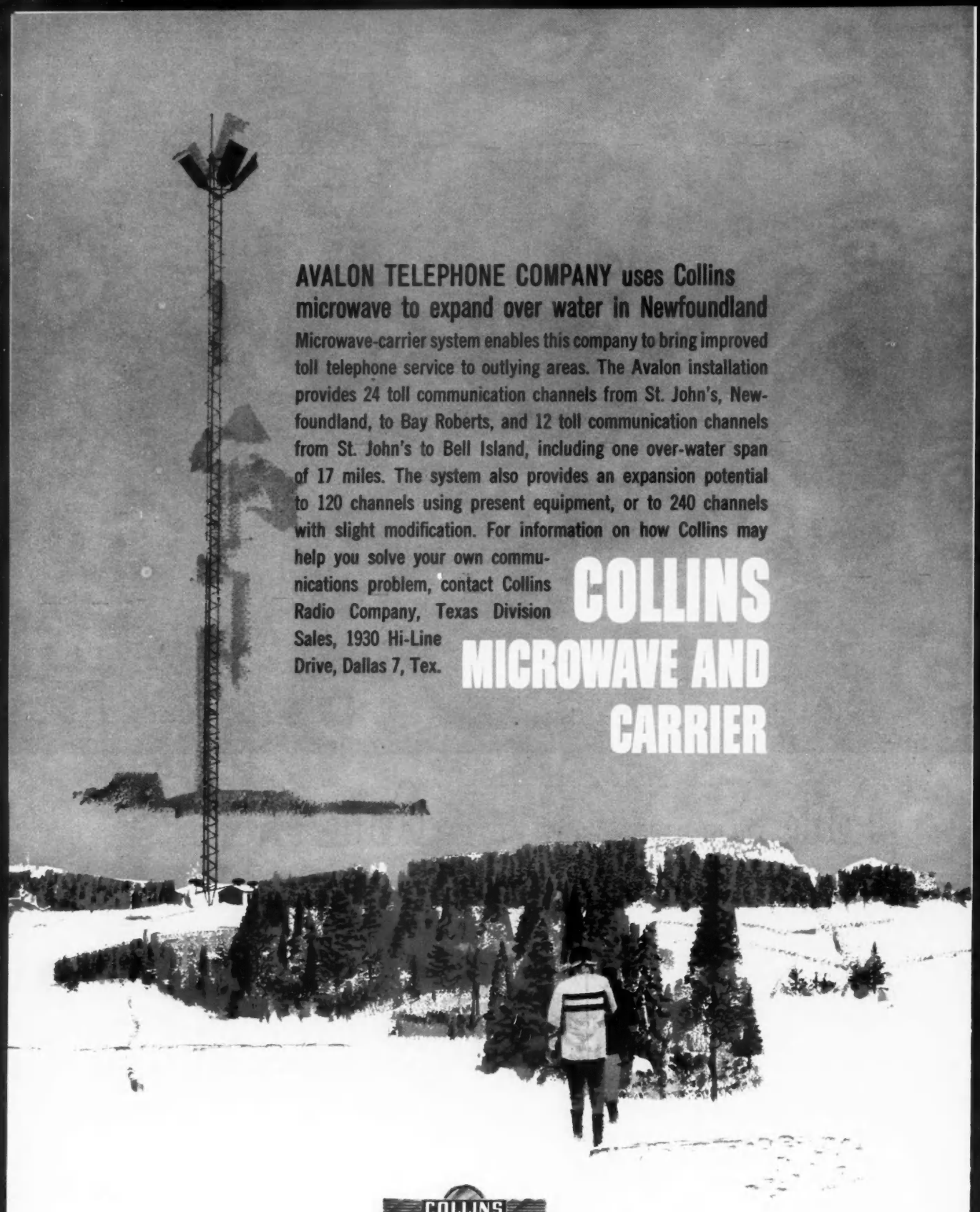
GENERAL DYNAMICS | ELECTRONICS
TELECOMMUNICATION DIVISION



AVALON TELEPHONE COMPANY uses Collins microwave to expand over water in Newfoundland

Microwave-carrier system enables this company to bring improved toll telephone service to outlying areas. The Avalon installation provides 24 toll communication channels from St. John's, Newfoundland, to Bay Roberts, and 12 toll communication channels from St. John's to Bell Island, including one over-water span of 17 miles. The system also provides an expansion potential to 120 channels using present equipment, or to 240 channels with slight modification. For information on how Collins may help you solve your own communications problem, contact Collins Radio Company, Texas Division Sales, 1930 Hi-Line Drive, Dallas 7, Tex.

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TELEPHONE ENGINEER
AND MANAGEMENT'S
WASHINGTON
OBSERVATIONS

Western Union Requests "Telpak" Investigation

FCC RAISES A QUESTION

Western Union claims it is unable to compete with Bell System's "Telpak" tariff as it is being applied . . . FCC says "Telpak" rates not applicable in situations where service is furnished over diversity of routes instead of single broad channel.

By ROLAND DAVIES and FRED HENCK

IN DEVELOPMENTS which appear to be attracting widespread interest in the communications industry, the Federal Communications Commission and the Western Union Telegraph Co. have raised questions about provision of the Bell System's Telpak "electronic highway" service over a variety of facilities, rather than one broad channel from which various communication channels are derived.

The FCC staff outlined its views in a letter to the American Telephone & Telegraph Co., while Western Union filed a formal petition with the Commission asking for an investigation of the application of the Telpak tariff.

In its letter, the FCC said it is "informed that your company is furnishing, or is advising customers or prospective customers that it will furnish" channels under the Telpak tariff in situations: (1) where the customer requests a number of channels for services of the kinds which are obtained under Telpak — telephone, teletypewriter, telegraph, telemetering, facsimile, etc. — "and the company for its own convenience or because of availability considerations derives the channels requested from diverse interexchange channel facilities on the same or different routes between the specified pair or pairs of points;"

"(2) Where a customer requests a number of channels over a diversity of routes without specifying the routes, and the telephone company derives them in the same way; and (3) where a customer requests a number of channels over specified diverse routes, and they are furnished in the manner requested."

"In each of the above-described situations," the FCC letter continued, "we are informed that Telpak channel rates are applied, presumably by using the table of telephone grade channel equivalents to determine the number of chargeable Telpak channels comprised in the channels furnished to the customer.

"With respect to all three of the above instances, it appears that Telpak rates are not applicable, in that the service furnished is not that of furnishing a single communication path (Telpak channels) of specified width which is then subdivided into channels of lesser width as contemplated" in the tariff description of service, the Commission continued.

"Rather, it appears that the service so rendered is similar to that contemplated under the provisions" of the multiple channel tariff, "if the number of channels between a given pair of points is appropriate, or otherwise the provisions" of the regular private line tariffs.

In addition, the FCC said, in the second and third situations described above, "we are unable to find in any of the above-mentioned tariffs, including Telpak, provision for diversity of routing on customer request at no additional charge. Moreover," under the third example, "to our knowledge the company in the past has charged customers on the basis of a multipoint channel in accordance with the sequence of routing specified, which appears to be in compliance with the company's tariffs."

The Commission concluded that application of the

Telpak rates as described is contrary to law, and that "if these situations exist, it is expected that the company will immediately take all steps necessary to see that service is furnished and charges made therefore only in accordance with the provisions of its legally applicable tariffs."

Western Union, in its filing, described itself as unable to compete with the Telpak tariff as it is being applied, and without ability to compete fully in the private line field when it cannot offer voice services. It foresaw extensive losses in present and prospective private line revenues, and contended that "In addition to the improper practices in the application of the Telpak tariff, the design and effect of the said tariff is to stifle the competition offered by Western Union in the private wire service field and to promote a complete monopoly by the telephone company."

It depicted its nationwide microwave radio network, planned on the basis of extensive service orders from the U. S. Air Force, as seriously endangered by the application of the Telpak tariff.

Western Union keynoted that "Upon information and belief, representatives of the telephone company have offered to furnish the total channel requirements of users of private wire service, some of whom are presently customers of Western Union, between any two service points and to apply the Telpak tariff schedules to the total channel requirement despite the fact that such channels are over a diversity of routes between two service points and could not, or would not, be combined into a single broadband electrical path.

"In effect, the representation is that, to conform to the requirements of the customers, the Telpak tariff will be applied to the existing channel facilities however dispersed, whether over one or multiple routes, between any two service points when such Telpak tariff schedules will produce lower charges.

"If such practices be permitted, then it is reasonable to expect that the USAF will cancel a major part of its existing leased circuitry with Western Union, that other branches of the government will no longer obtain the channels used in their private wire service from Western Union, and that other customers of Western Union will obtain their facility requirements from the telephone company in order to obtain the benefit of rates improperly and unlawfully calculated under the Telpak tariff."

AT&T, in a press statement following the Western Union filing, said that "The Telpak tariff is the same with respect to routing as other private line tariffs which have been in effect for a number of years. The service is furnished over whatever route is readily available and most economical.

It added, "It is not our purpose to stifle competition, but to more effectively meet the competition of private microwave systems which the Commission in the above-890 megacycle decision made generally available. In that decision, the Commission stated that users should have freedom of choice between common carrier and private microwave service."

Wide Area Service

REGULAR hearing sessions in the FCC investigation of the Bell System's wide area telephone service tariff are scheduled to get under way April 10, following distribution of prepared written testimony by four witnesses for the American Telephone & Telegraph Co.

The current phase of the WATS case is devoted to the lawfulness of the rates and service regulations themselves. The remaining portion of the case, dealing with the compensation complaints of the U. S. Independent Telephone Association and the General Telephone & Electronics Corp., will be taken up later.

GT&E, however, has a request pending before the Commission to consolidate the two phases of the hearing into one proceeding.

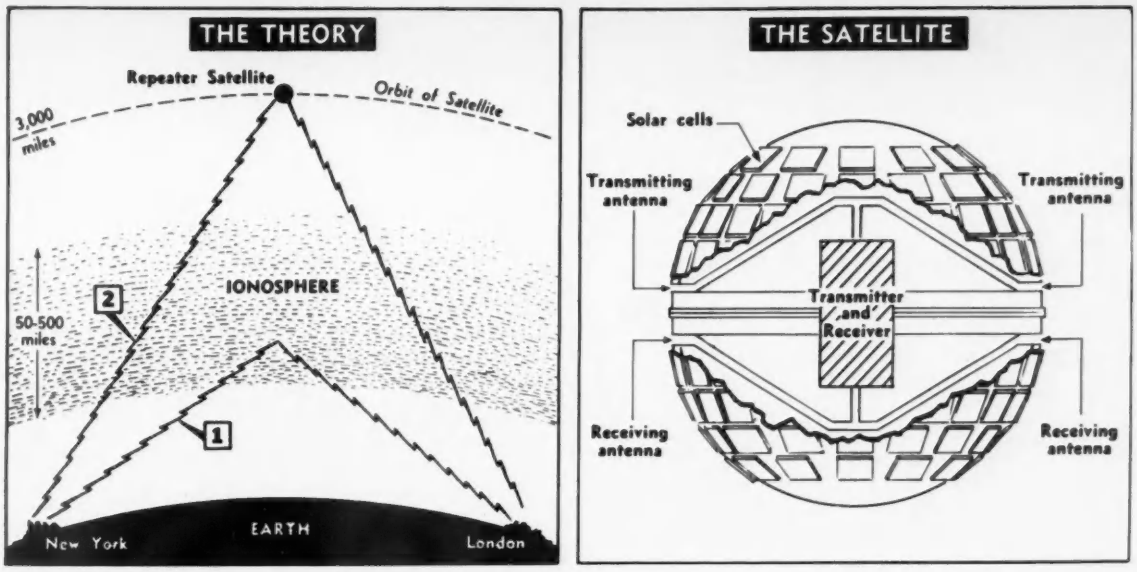
AT&T's policy witness in the WATS case, Assistant Vice President Hubert L. Kertz, testified in the prepared material that 2182 Independents were participating in the furnishing of interstate WATS on Jan. 31, while 1189 Independents were not participating. He explained that the participating companies serve about 3,300,000 telephones, while the non-participating companies have about 7,000,000 stations.

Asked what measures are taken to inform WATS customers that the service does not include calls to non-participating exchanges, he explained that "The WATS customer is told that there are certain points within the service areas to which WATS calls may not now be made, and that any calls to such points should not be made over WATS access lines. The customer is also told that if a call is made to such a point over a WATS access line, he will be charged for the call at the long distance interstate message rates. . . ."

Giving reasons why WATS is being offered even though all companies do not participate, he declared that "We believe WATS is in the public interest. As I have developed in my testimony, WATS is a new form of interstate long distance service at lower unit charges which meets a need not fully met by other services.

"It is my understanding that both the U. S. Independent Telephone Association and the General Telephone companies agree that WATS is a desirable service. It certainly would be better if the entire telephone industry participated in the offering. However, the service is now available on a nationwide basis to 90% of the telephones in the country. Surely, the benefits of this service should not be withheld from the telephone-using public because certain companies, representing only 10% of the telephones, are unwilling to participate until questions relating to division of revenues have been resolved.

"If this service could not be furnished until all telephone companies have agreed to participate, this would be a unique situation in the telephone industry, so far as I know. If a new service could not be provided without the participation of every telephone company, any company would be in a position to prevent the public from obtaining the benefits of such a service until its demands have been met."



Overseas messages are now sent by underwater cable or by short wave radio beams which are "bounced" off layers of ionosphere as shown (1) in the diagram. But cables and radio frequencies now used are becoming overcrowded, and the ability of the ionosphere to bounce waves is often limited by atmospheric conditions. Microwaves in proposed satellite circuit (2) would pierce the ionosphere and be relayed by a satellite unaffected by atmospherics. Drawing at the right shows what satellite might look like. Solar cells would provide power for the transmitter and receiver.

TELEPHONE ENGINEER AND MANAGEMENT'S

REPORT ON SPACE COMMUNICATIONS

By FRED HENCK and TOM MALIA*

The idea of using satellites in orbit around the earth for telecommunications has reached the stage where the question is no longer "Can it be done?" but "How will it be done?"

FROM THE Buck Rogerish dreams of post-World War II to the drawing boards of the early 1950s, the idea of using satellites in orbit around the earth for telecommunications has sped along at a dizzying pace to the present stage, when the question is no longer "Can it be done?" but "How will it be done?"

It is no exaggeration to state that telephone communications and telegraphy are on the threshold of a new era. Never in the wildest exuberance of imagination would the inventive minds of Samuel F. B. Morse or Alexander Graham Bell have conceived of man's voice or the written word being bounced off floating spheres in space, carrying messages between points thousands of miles apart, not to mention television and data transmissions spanning the globe.

But in the little more than three years since former President Eisenhower's voice was beamed from a tape carried in a satellite orbiting the earth, progress has been swift and the state of the art is at the stage where, answering an invitation of the Federal Communications Commission, 17 organizations recently submitted several thousands of pages of policy statements, technical data, and appendices to the FCC in the agency's long-range inquiry into space communications.

They are agreed that the job can be done; they disagree only on how to do it. And the government is agreed that the job should be left to private enterprise; a policy pronouncement to that effect was handed down late in the Eisenhower administration, and nothing has

**Mr. Henck and Mr. Malia are editors of "Telecommunications Reports," Washington, D. C., and members of TE&M's Washington staff.*

been done to change this position in the Kennedy regime.

The National Aeronautics & Space Administration is readying plans for an experiment in cooperation with industry with a low altitude communications satellite, which it hopes to launch sometime in 1962. And the American Telephone & Telegraph Co. has been given the go-ahead by the FCC to conduct extensive research into earth-satellite communications.

Space Communications And The Independents

HOW WILL ALL of this affect the Independent telephone industry in the United States, specifically those small companies serving limited areas around the country?

The satellite communications program, on its face, is for long distance uses. To be more exact, urgency is being attached to the development of a practical system to solve the problem of the expanding requirements for international traffic.

At this stage of the game, it does not appear that serious consideration is to be given to the use of satellites for handling traffic between distant cities in the United States, or even for transcontinental messages.

And certainly no thought has been given to sending ping pong ball-sized balls up in the air to carry messages between across-the-street neighbors, or from Oshkosh to Sheboygan.

But, as the submarine telephone cables which have come into being during the past several years have demonstrated, the access to reliable circuits has been accompanied by a sharp rise in the international telephone calling rate. The cables triggered this increase, and satellites, offering the possibility of thousands of reliable circuits for trans-ocean use, can logically be expected to start another upward trend.

Naturally, the local telephone company, the terminal for such trans-ocean calls, will benefit.

Technology in the satellite communications art has advanced so rapidly and so far that not only were 17 organizations able to give the FCC volumes of information, as mentioned above, but that agency, NASA, and other offices of the government are looking closely at the subject, demonstrating a recognition that it is no longer a "wild blue yonder" scheme that should be left to the science fiction writers.

In the above-mentioned filings with the FCC, the General Telephone & Electronics Corp. summed up its views in four points: (1) A common carrier satellite communications system appears to be technically feasible and work on the establishment of such a system should proceed without delay; (2) only one common carrier satellite communications system can be established and operated economically within the foreseeable future; (3) the organization and operation of a common carrier satellite communications system by private enterprise is economically feasible and in the public interest; and (4) any common carrier satellite communications system should be established on a basis which will permit ownership of satellite facilities by all interested communications common carriers and use of such facilities by all interested communications common carriers whether or not they elect to participate in ownership."

General Telephone, AT&T, and the others submitting comments to the FCC agree that satellite communications will be of tremendous importance to the United States, and to the world, and that only one satellite system is economically practicable.

After reaching that point, their views separate and go in several directions. They differ on a number of important points, among them the question of sharing frequency space by satellite and terrestrial systems — a dominant theme of the Commission's "short range" inquiry which led to a decision on reconsideration of the FCC's microwave policy ruling.

Some of the companies and organizations also look differently at the various proposals for a space system. Some favor a low-altitude, multi-satellite operation, while others prefer a synchronous or "stationary" satellite system. There is also some difference of opinion about the relative merits of "passive" and "active" satellites, although the inclination at this time is to conclude that the latter offers greater possibilities for meeting the needs of the future.

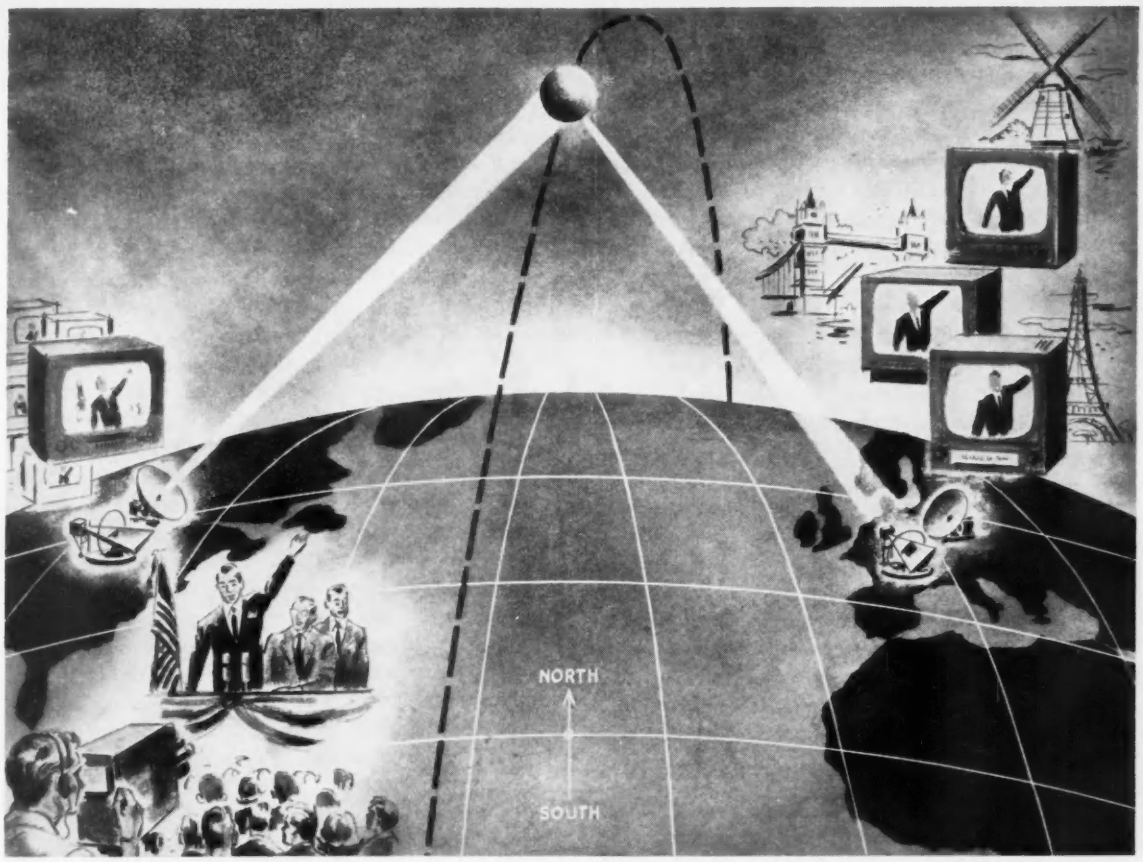
At this point, it might be well to offer some brief definitions of these opposing terms. "Low altitutde," in the parlance of space discussions, generally means an object in space at a height of up to 8000 miles above the earth; "high altitude" is for the most part limited to the synchronous or "stationary" satellite, which would be placed in orbit 22,300 miles above the earth and would travel in space at the same speed as the rotation of the earth. This would mean that the satellite would always be directly above the same spot on the earth.

"Passive" satellites, as the name suggests, are merely large, objects such as the balloon used in last year's Echo experiment, which are used simply for bouncing radio signals off the surface to help in long distance transmissions; "active" satellites carry electronic gear for amplification and immediate relay of signals between two points on earth, or for storing information for later re-transmission.

The AT&T Tests

THE earth-satellite communications tests which AT&T will conduct, under an FCC authorization, will use low-altitude, active satellites. A fixed earth station, at Holmdel, N. J., will transmit to and receive from radio installations on as many as six satellites yet to be launched, using frequencies set aside for common carrier use.

NASA, which first successfully carried out a program in 1960 in cooperation with Bell Telephone Laboratories and the Jet Propulsion Laboratory at Goldstone, Calif., with the passive satellite, Echo 1, is now working with industry on the development of a low altitude active communications satellite.



Above artist's sketch illustrates how proposed satellite system would work. Television or voice signals would originate at the ground station on either side of the Atlantic, be beamed at the satellite as it passes in orbit. When the signal strikes the sphere it would be regenerated immediately and flashed back to earth.

Known as Project Relay, this NASA project is intended "to demonstrate the feasibility of basic concepts and technological approaches and to evaluate the various systems to be employed in communications satellites." The agency hopes to launch its first Relay satellite about mid-1962.

NASA, which has shown an enthusiasm for space communications as the "first practical application" of satellites, has mapped out an ambitious program for itself in the next several years. The agency, emphasizing from time to time that it believes operation of any space system should be in the hands of private industry but that it is ready to offer its cooperation and services, says it will launch about a dozen communications satellites in the next several years.

Officials of the federal space organization feel that last year's Echo established the feasibility of passive satellites and also confirmed radio propagation and orbital theories, and the use of large structures in space. Now it wants to turn its attention to the active satellites, which NASA believes are more suitable for commercial use.

NASA's position with regard to operation of systems by private companies was first spelled out in late 1960 by T. Keith Glennan, Administrator of the agency in the Eisenhower administration. He declared that the use of satellites to provide communications links as a part of ordinary commercial services should be left to private industry, with the government lending assistance aimed at accelerating the nation's progress toward the practical application of such communications systems.

Mr. Glennan's views stirred a bit of a controversy. Some people in the military felt that he was not empowered to make such a statement — that NASA's authority was with research and development related to passive satellites, and that the military were responsible for the active satellite program. Mr. Glennan's authority was also questioned by some people in Congress.

But in an 11th hour policy pronouncement, before leaving office, former President Eisenhower backed up Mr. Glennan's position, and in the first months of the Kennedy administration there are no indications that this position will be changed.

Dr. Hugh Dryden, NASA Deputy Administrator under both Mr. Eisenhower and Mr. Kennedy and acting Administrator at the outset of the Kennedy administration, has continued to talk about the "cooperative arrangement" between NASA and private companies.

In recent testimony before the House Appropriations Committee, Dr. Dryden said that NASA expects

to "in effect lease stations for experimental purposes, which are to be accessible to all companies for experimenting in this first go-round" of launching developmental communications satellites.

"We did not think it feasible at this stage in the research and development program to say that the government will restrict its cooperation to one firm and we have invited specifications on a satellite which will first of all demonstrate the one-way communication, say, of television."

"Standing At The Threshold"

THE private companies standing at the threshold of this new era in communications include not only the common carriers which have provided telephone and telegraph service for the nation, and radio communications companies — notably the Radio Corp. of America and General Electric Co. — but also a seemingly unrelated field of industry: aircraft firms.

One of the most extensive plans for a new approach to satellite communications, involving the establishment of a "common carriers' common carrier" and consideration of the FCC as the only existing government entity with the statutory power to get the project off the ground before additional problems descend, is contained in a management study report completed for the Lockheed Aircraft Corp. by the consulting firm of Booz, Allen & Hamilton. Legal opinions have also been added to the report, entitled "Business Planning Study for a Commercial Telecommunications Satellite (Telesat Study)," which deals with political, legal, and regulatory concepts underlying the basic report.

The basic recommendations and conclusions of the study are: "(1) That an international satellite communications link for telephone, telegraph, and telex communications operated by private enterprise will be economically feasible by 1968-70 and technically feasible even sooner.

"(2) That because of the wide range of business research and development problems involved in such a venture, it will be necessary for this country to select some entity in the immediate future to carry forward with such a project if a full-scale operational target date of 1968-70 is to be met.

"(3) That within the existing legal and regulatory framework and the business exigencies related to such a venture, the satellite operation could be best carried on through a joint venture of manufacturers of satellite hardware and the major United States communications common carrier activities in both the voice and record fields.

"(4) That the basic role of the satellite link enterprise would be that of a common carriers' carrier leasing channels to all voice and record carriers in the U. S. and abroad who are now engaged in international communications. On this basis, international messages would originate and terminate via the land distribution networks of existing carriers.

"(5) That the common carrier role of the satellite communications link would require authorization by the FCC under its existing statutory powers. And

"(6) That the selection of a common carrier need not await the final resolution of all other problems relating to space communications which, in some instances, may involve assistance by and the authority of other government agencies, since the prior selection of a carrier can be made without prejudice to the ultimate solution of such other related problems by either the FCC or other government agencies having an interest in or jurisdiction over some related phase of space activities."

The Lockheed report emphasized that too often "discussions of the problems of space communications revolve around the single consideration of appropriate frequency allocations on either the domestic or international level. Without meaning to disparage the vital importance of frequency allocation problems, there is an apparent danger that if it is overemphasized at this stage, other equally important facets of satellite communications development may either be unnecessarily delayed or put on the shelf pending final resolution of the frequency allocation problems.

"It is in this area of establishing priorities for space communications development," the report said, "that the prompt selection of the entity which will operate any future common carrier satellite communications system should be given serious consideration by the FCC in the immediate future."

The management consulting firm said the satellite communications system it recommends would involve a cost of $260,000,000 over a six-year initial phase period; two "stationary" active satellites in orbit about 22,300 miles above the surface of the earth providing a 24-hour orbital period; and a ground station system of 20 stations, four of which would be in the United States. The consulting firm declared that "a sound business proposition can and will ultimately be built around this new system." — *(To be concluded in the next issue.)*

IN THE NEXT ISSUE

REPORT ON SPACE COMMUNICATIONS
By Fred Henck and Tom Malia

GETTING THE MOST FROM YOUR CONSTRUCTION DOLLARS
By John S. Reed

MAINTENANCE PROCEDURES THAT ELIMINATE TROUBLE REPORTS
By Richard Allen

CENTRAL OFFICE'S PART IN THE CONSTRUCTION PROGRAM
By C. D. Ehinger

TRAFFIC LIGHTS

By D. A. PERIGO
General Traffic Supt., West Coast Tel. Co., Everett, Wash.

Letter To A Potential Operator

A GOOD PLACE TO WORK

A young lady writes TE&M's Traffic Editor and asks about "telephone operating as a career," and Mr. Perigo replies with a letter that proves the future is bright, the pay is good, an operator's associates are fine people, and there's room to progress.

DEAR Miss Dickey: — I hope you will accept my apologies for the delay in making a full reply to your most interesting inquiry about telephone operating as a career.

First of all, I compliment you on your desire to find out where you are headed before you start. Too frequently these days we find people wandering aimlessly about until they "fall in" to most any kind of job.

Many people have described telephone operators as "listeners in" to all that goes on in a community: others as automations who make connections, then take them down too soon, causing cutoffs; and still others think of operators as being cooped up, but gabbing while they chew their bubble gum. None of these pictures is in the least accurate. Some have been the result of comedy writers.

We must admit, however, that some of these pictures have been based on a fact or so — but the facts concern only a few, rather than all telephone operators. Generally speaking, operators who are not a credit to their company and community are quickly weeded out in favor of more desirable employes. This is normal for any kind of business. To condemn all operators because one was bad is just as unreasonable as discontinuing the church because a minister, priest, or rabbi was bad — or to close the schools because one teacher was bad.

I have mentioned these things because when you tell some people you want to be a telephone operator they will say, "you don't want to be like them!" I hope the following will give you a way of answering such unthinking people.

"A Look At The Present"

YOUR interest is in the present and the future — not the past. So let's take a look at the present, then we will make a prediction about the future.

Your first consideration should be "Is the Telephone Company a good place to work?" Usually people say it is. This means that working conditions are good, the pay is satisfactory, the company pays its bills, and its employes are in the PTA, teach Sunday School classes, belong to various clubs and community organizations, and are all-around good citizens.

It also means that the employe has a chance to develop and grow with the company. Opportunity is a part of the business.

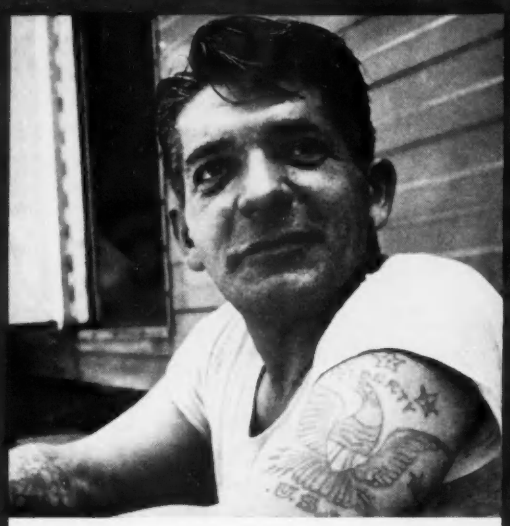
Next you should find out whether you are qualified to start as an operator or whether you are more adaptable to some other kind of work. One of the things necessary to being a good operator is to have a high degree of "manual dexterity." This means that you can move your hands quickly, accurately, and gracefully while you are thinking about something else. If you can't do this, you may still be a good operator, but you will develop tensions that will keep you from enjoying the work. (Most State Employment Offices administer a manual dexterity test.)

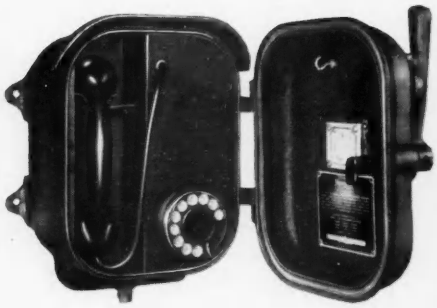
You should be able to spell, particularly the names of places and people — and your penmanship should be good. You should know arithmetic. Some knowledge of geography is helpful. For example, if some one placed a call to San Francisco you would immediately *know* that was California, but if someone asked for Ferndale you would ask, "In which state, please?" because there is one in California, one in Washington, and probably several other states.

Most operators today are known as "Long Distance," meaning the primary job is completing calls which

Please turn to page 38

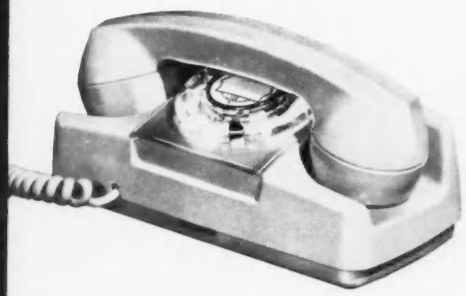
Different people want different phones





OUTDOOR PHONE
A must for loading docks, cab stands, lumber yards, etc. Regardless of the weather, this phone perform with indoor dependability. Locking door limits use, prevents abuse.

AE makes a phone for every customer need



STARLITE* PHONE
The answer to a modern homemaker's dream. This compact phone is half the size of a regular phone. Choice of six colors. Dial light can be turned from soft to bright or completely off, anytime.

Each person in your area has specific telephone needs. Take the dock hand. He needs an outdoor phone that performs in any weather. Mrs. housewife, on the other hand, wants a phone that adds new beauty and color to her home. You can sell both...

To meet the needs of different customers, you must provide many types of phones—standard *and* special. Why? Because it's profitable! The customer who wants a special phone pays extra for the extra service.

Any new customers in your area? Any old ones with new telephone needs? If so, show them the AE phone best suited to their particular needs. Contact your AE representative. He'll be glad to give you full details on our complete line of telephone services and related instruments. Only AE offers 15 different phones to meet different customer needs.

AUTOMATIC ELECTRIC

Subsidiary of

GENERAL TELEPHONE & ELECTRONICS

GENERAL SYSTEM

**STARLITE is a trademark of Automatic Electric Company*

require a record for billing purposes. This is the reason I mentioned the need for good spelling and penmanship. Poor spelling or penmanship can cause the Accounting Department to bill the wrong customer or bill a customer for a wrong amount or to the wrong place.

In most offices, even though the primary job is handling Long Distance Calls, the operator has a lot of other jobs which we call "Assistance." Party line subscribers sometimes need a special code to reach others on their line, a customer wants to know what the night rate is to some point, or he wants the telephone number of someone in another state. These are all jobs that fall on the operator.

In the excitement of an emergency the customer frequently calls the operator to get the police, the firemen, or an ambulance. It's the telephone operator who has the good of the community at her fingertips 24 hours a day.

There are some unpleasant things too — especially for a young lady. The customer wants telephone service at any hour — nights, Saturdays, Sundays, and Holidays. This means that operators must work when others are having a good time.

One of the big things in Union activity is Seniority. In a lot of telephone companies the operators with the greatest amount of service have the first choice of the days off and the hours of work. The new employes take what is left — and this frequently means that a young lady just out of school works Saturdays, Sundays, Holidays and probably late in the evening. She misses out on dates and parties — but if you stick around long enough you move up as you get the good hours. I don't like anything about this system but a contract must be honored.

"A Life of Service"

ALL of this actually means that to be a good telephone operator you must dedicate your life as one of service to your community — and without the glamour that goes with being a nurse or airline stewardess.

The public takes the operator for granted, but the operator herself can get a lot of personal satisfaction from the job. She handles calls which mean thousands of dollars to the customer and she handles the call where a grandmother hears her newborn grandchild gurgle for the first time.

She gets the call through that reports a train wreck and calls for doctors and ambulances. She makes the connection when a son calls to tell his parents he's back from foreign duty — and she handles the calls that carry Christmas greetings.

Now as to my prediction of the future — because I'm sure you are looking for a career rather than a temporary job.

We already have customers dialing a lot of their station toll calls. This will increase and, in addition, most other calls will also be on a customer dialing basis with operator control. This means that the percentage of assistance calls will increase. It means we are getting closer and closer to the point where the term "operator" will be obsolete because she will do less and less operating but will be available to the customer as an assistant with his telephone needs.

Instead of calling them operators, I believe they will be more appropriately called "Service Assistants." All of this adds up to constantly improving the quality of the employes who are hired, trained, and promoted.

For the young lady who is ambitious but not selfish, who is willing to sacrifice some of her dates and parties to serve her community, and who is willing to follow management advice, there can be a very bright future as a telephone operator. The pay is good, the associates are fine people, and there's room to progress.

Now, since I write "Traffic Lights" for *Telephone Engineer and Management*, I'm taking the liberty of publishing this letter. Our magazine goes to many high schools and maybe some other seniors will be interested.

I'm real glad you asked about the job, Arlene and I wish you the best of luck in all that you do. . . . Sincerely, — *D. A. Perigo.*

"Worth Writing For"

Engineering Data Tables

NATIONAL-STANDARD CO. has issued a series of Engineering Data Tables giving complete specifications and application data for its Copperply® communication wire. Five Data Tables are available, each completely describing one wire size. Wire sizes covered are 080-25 Special (0.080-in. diameter, 25 per cent equivalent conductivity), 080-30, Extra High Strength, 095-22 Special, 102-30 Extra High Strength, and 104-40 High Strength and Extra High Strength. For free copies of Copperply Engineering Data Tables, *write to Department TE&M, National-Standard Co., Niles, Mich.* In Canada, write to *National-Standard Co. of Canada, Ltd., Guelph, Ontario. Mention wire sizes when requesting copies.*

Home Study Course

GENERAL Catalog 1125N from International Correspondence Schools describes over 250 standard ICS home-study courses for individual and industrial training. Included are 25 electronics courses, of which 11 are new in 1961. Electronics courses range from a short course on electronic fundamentals to electrical engineering with special electronics optional section. New 1961 courses cover the fields of Radio-Electronic Telemetry; Electronic Computers; Ultrasonics; Mono and Hi-Fi; Special Sound Systems; Communications Technology; Industrial Electronics Technology; 1st and 2nd Class FCC Radiotelephone License; and Semiconductor Transistor circuits. Write for *General Catalog* 1125*N*, *ICS, Dept. TE&M, Scranton, Pa.*

Microwave Filters

THE LATEST issue of "PRD Reports," Vol. 7, No. 1, written by Eugene N. Torgow, is entitled "Microwave Filters."

Copies of "PRD Reports" Vol. 7, No. 1, is offered free by *PRD Electronics, Inc.*, 202 *Tillary St., Dept. TE&M, Brooklyn, N. Y.*

SUB-HARMONICS and OVERTONES

By C. D. EHINGER
Pres., Citizens Telephone Co., Decatur, Ind.

Methods Of Measuring "Return Loss"

A SIMPLE DESCRIPTION OF "NET LOSS"

In this article, Mr. Ehinger describes the steps in making actual measurements of "return loss" on a circuit. See the March 1 issue of TE&M for the first article concerning a subject which vitally affects the transmission effectiveness of the toll and EAS trunks. (Concluded from the Mar. 1 TE&M.)

THE actual test equipment used in the measurement of return loss consisted of a Heath AG-9 audio generator, a Knight Laboratory AC VTMV, and an Airtronics International Portable Test Hybrid set. A photograph of this equipment can be seen in *Figure Two.*

The circuit used for the demonstration of return loss measurements consisted of 12,324 ft. of 24-gauge cable and 6,524 ft. of 22-gauge cable. Actually, these lengths consisted of intermixed lengths of the two gauges and, consequently, consist of a series of impedance bumps, or mismatches, thereby causing considerable return loss. The cable is non-loaded.

The first step in making the return loss measurements on this test circuit was to adjust the Portable Test Hybrid set. The "net selector" switch was set to "external" and the "filter" switch was set to "out."

In the first series of tests, it was decided to test the circuit for return loss when it was terminated with a 600 ohm resistor, only. The Hybrid set was first checked for balance *without the test circuit.* A 600 ohm, ±1 percent carbon resistor was placed directly across the "line" terminals of the Portable Test Hybrid.

A precision decade resistance box, variable in steps of 1 ohm, was then placed across the "external net" terminal. The oscillator was set at 1000 cycles, with output level at 0 db (1 milliwatt in 600 ohms) and patched to the "in" jacks. The laboratory VTVM, with a precision 600 ohm resistor across the input, was then patched to the "out" jacks. This setup was as shown in *Figure Three.*

The lab decade resistance box was then varied for the maximum null on the AC VTVM. The particular volt meter used in this measurement is capable of measurements to only — 65 dbm and the null reached with the setup shown in *Figure Three* was in excess of this figure and is estimated to have been in excess of — 70 dbm.

Return Loss From 100 cps to 100 KC

THE TEST circuit was then terminated in the same resistor shown on the right-hand side of *Figure Three.* The input to the test circuit was hooked to the "line" terminals of the Portable Test Hybrid set. Return loss measurements were then made from 100 cps to 10 kc. The results of this measurement can be seen as curve A on the graph. (*Fig. Four.*)

It was decided to make return loss measurements with the test circuit terminated in an old style handset, vintage of the early 1930's, and to also make a third return loss measurement with the test circuit terminated in a modern-day handset.

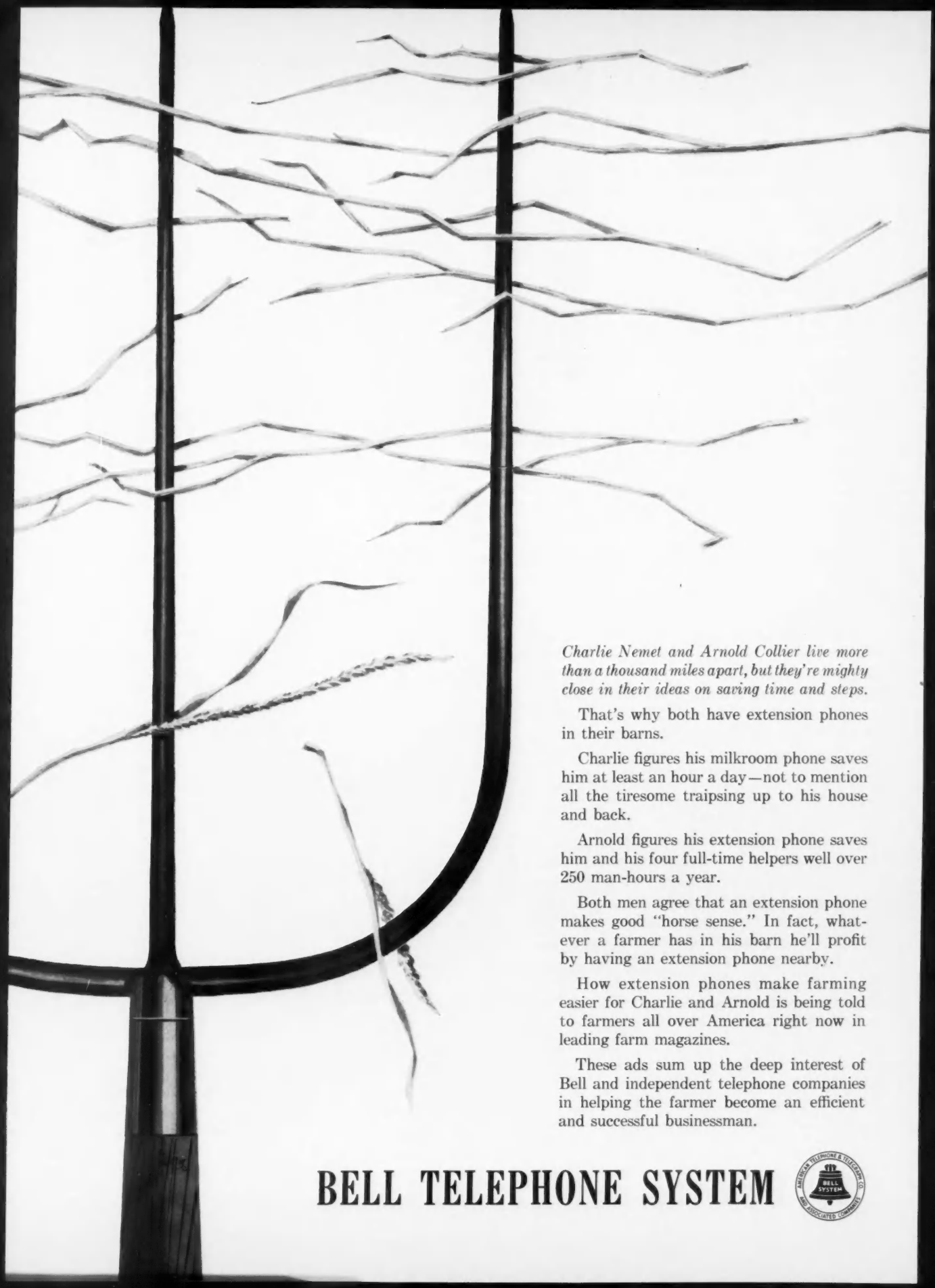
For the purposes of these return loss measurements, the network used was the usual "compromise network" and consisted of the same lab decade resistance box setting (shown on left side of *Figure Three*) in series with a 1 mfd condenser. In all other respects, the test setup was identical to that used in measuring the test circuit when it was terminated only in a 600 ohm resistor. The results of these two return loss measurements can be seen in curves B and C of the graph. Curve B is return loss when the test circuit was terminated in the old-style handset, in an off-hook condition, while curve C is the return loss experienced when the test circuit was terminated in a modern-day handset in an off-hook condition.

It is apparent, from the return loss results of this particular circuit, that

These farmers use good, modern "horse sense" to save time and steps

Charlie Nemet of Hampshire, Illinois

Arnold Collier of Dixon, California



Charlie Nemet and Arnold Collier live more than a thousand miles apart, but they're mighty close in their ideas on saving time and steps.

That's why both have extension phones in their barns.

Charlie figures his milkroom phone saves him at least an hour a day—not to mention all the tiresome traipsing up to his house and back.

Arnold figures his extension phone saves him and his four full-time helpers well over 250 man-hours a year.

Both men agree that an extension phone makes good "horse sense." In fact, whatever a farmer has in his barn he'll profit by having an extension phone nearby.

How extension phones make farming easier for Charlie and Arnold is being told to farmers all over America right now in leading farm magazines.

These ads sum up the deep interest of Bell and independent telephone companies in helping the farmer become an efficient and successful businessman.

BELL TELEPHONE SYSTEM

it would not be suitable for use either as a terminating or as a part of a tandem toll circuit. Without additional doctoring, of some type, the return loss is too high and would cause trouble in nearly every case. Since the purpose of this series of articles is to explain the *method* of making return loss measurements, we will not go further into what should be done to such a circuit in order to make it suitable for ordinary use. (*Editor's note: If sufficient interest is indicated, we will have some articles in the future concerning this point.*)

FIG. TWO: A photograph of the test equipment used for the measurements described in this article. The Portable Test Hybrid set is at lower left with the oscillator above the Test Hybrid set. At the right is the Lab AC VTVM. See text for a description of the method used in making "return loss" measurements.

"Make Tests Under Actual Conditions"

BEFORE you flood me with letters, I also wish to point out that this particular set of tests gives us the return loss for this test circuit terminated under the particular set of conditions outlined and described for the three series of tests.

I hurriedly wish to also point out that return loss measurements on any of our actual *circuits* must be made under the conditions in which they actually operate, in other words, with any repeat coils, impedance compensators, loading coils, or any other bits of equipment which are a part of the circuit under operating conditions.

They must also be terminated under the conditions which will normally be encountered and, most importantly, the matching network used with the Test Hybrid must be identical to the matching network normally used, if a network is used. I sincerely hope that I make these points clear as it is quite easy to obtain return loss measurements which are perfectly valid, *for the test conditions used*, but are fallacious from the standpoint that they do not truly represent the conditions encountered in actual practice.

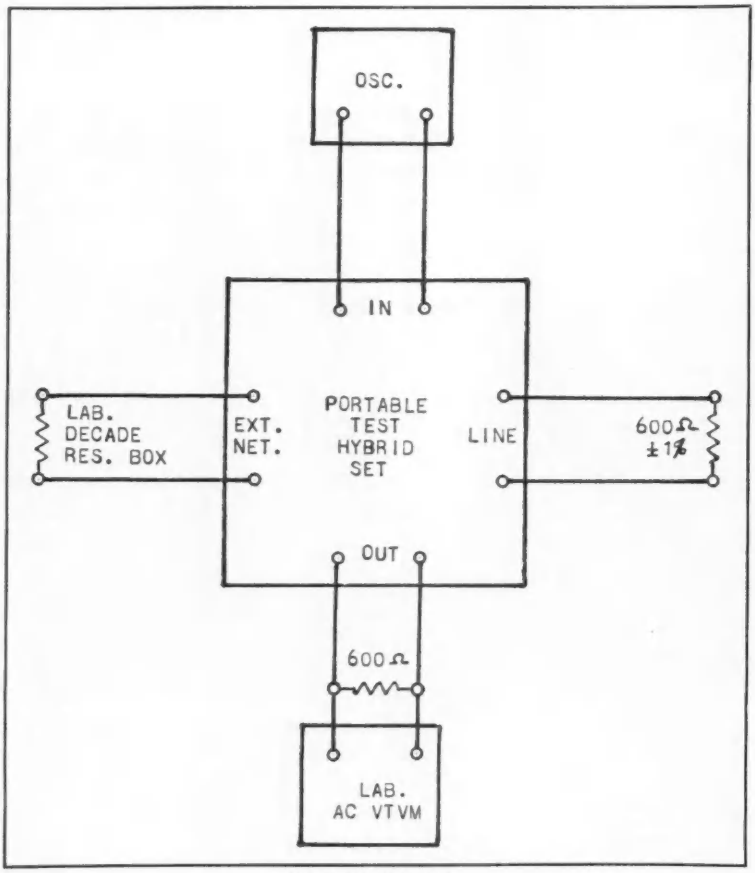


FIGURE THREE.

Sources Of Reference Material

THERE are many good sources of reference material which are an aid to understanding measurements of return loss and putting such understanding to practical use. If you do not already have this literature, I most heartily recommend that you obtain *"Practical Hybrid Network Balance Considerations,"* Edward E. Combs, Lynch Communication System, Inc.; *"Experiments for Com-*

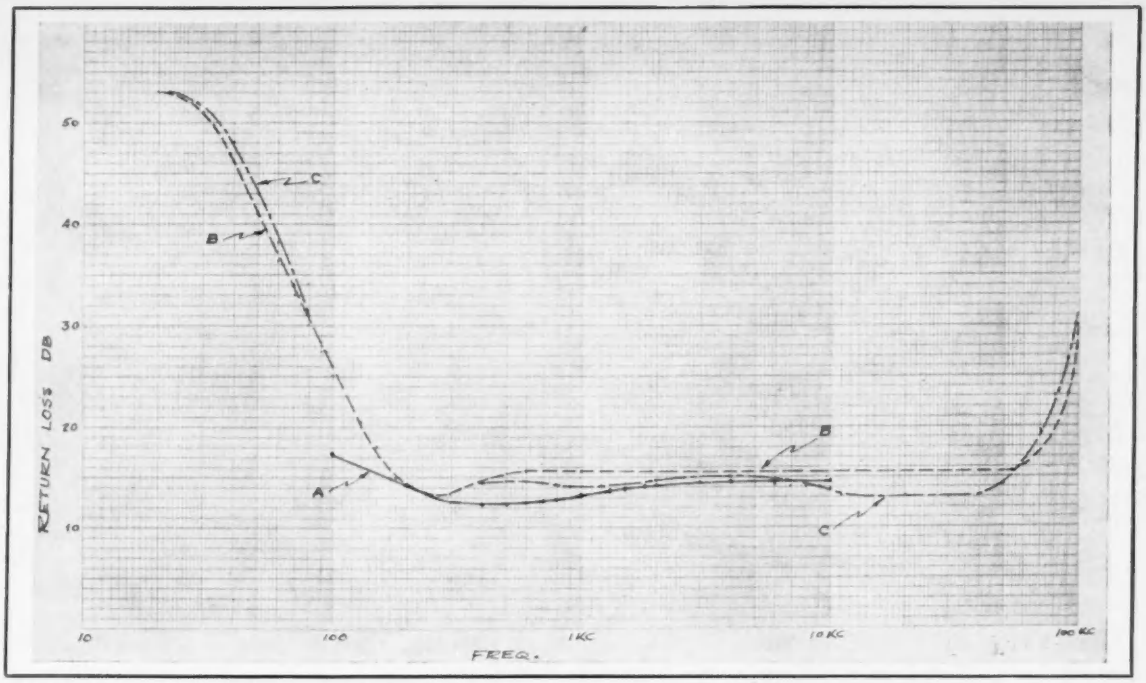


FIG. FOUR: — Graph of the results obtained in the three measurements described in the text. Measurements were in minus dbm. Since the curves represent return *loss*, the results are plotted as plus. Curve A is the return loss for the non-loaded cable pair terminated in a 600 ohm resistor and is typical of the return loss ordinarily found on subscriber loops. Curves B and C represent the return loss when the same non-loaded cable pair was terminated with a handset in an "off-hook" condition. (TE&M Lab.)

munications Training," Airtronics International Corp.; Technical Bulletin 533, "*Loading Systems for Voice Frequency Telephone Cables,*" Automatic Electric Co.

All three of these publications, plus many others which are available, should be in the library of any person involved in providing our toll and trunk circuits and, incidentally, doesn't that include all of us?

Editor's Note: — Mr. Ehinger is a member of the board of directors and serves as a consultant to Airtronics International Corp., manufacturers of the Portable Test Hybrid mentioned in this article. Mr. Ehinger has also written an article, previously published in TE&M, concerning the Lab VTVM used in this series of measurements. Mr. Ehinger has specifically requested that this information be a part of this article in order to avoid any implication that the pieces of equipment mentioned are the *only* available test gear. Many other manufacturers also have equipment eminently suited for such measurements.

—73—

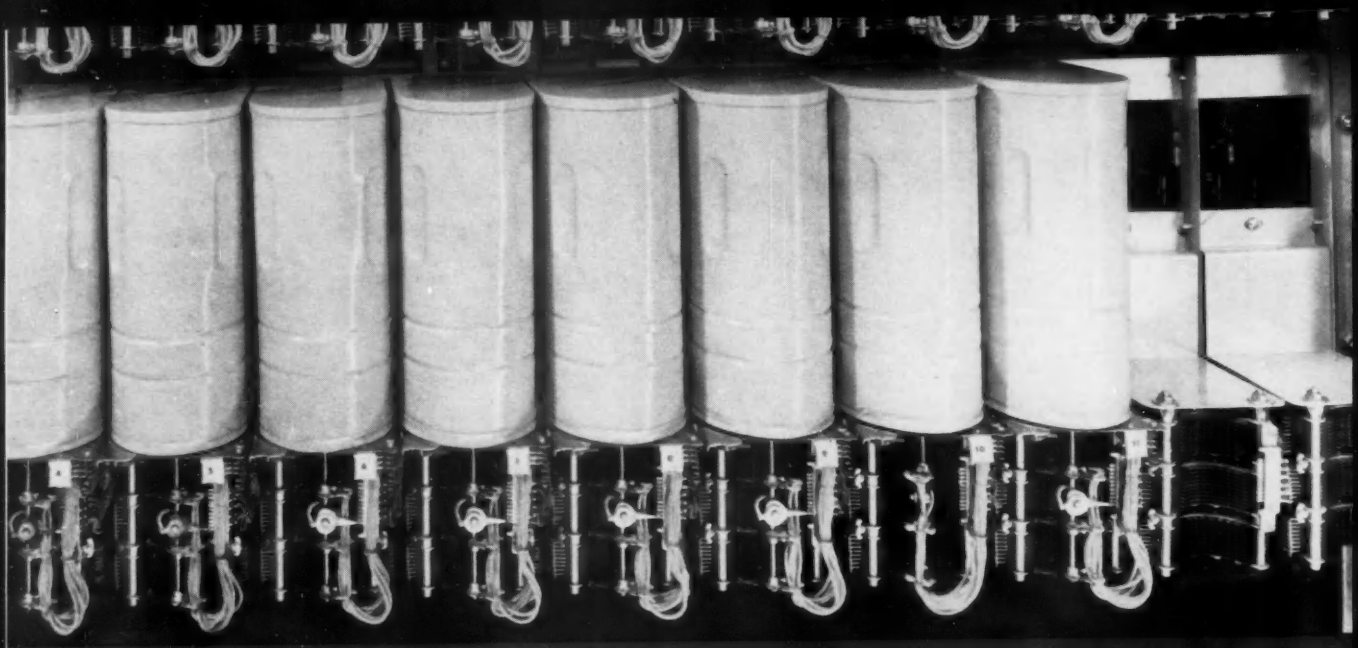
Any comments, criticisms, or suggestions for future topics? Address all correspondence to "Sub-Harmonics and Overtones," "Telephone Engineer & Management," 7720 Sheridan Road, Chicago 26, Illinois.

NEW REFERENCE BOOKS

Basic Theory And Application Of Electron Tubes. A Defense Department training manual, this study is concerned with the theory, development, and use of the electron tube. It discusses the varied uses of electron tubes in communications equipment and describes their construction and component parts, types, and operation. Among the features examined are diodes, triodes, electron emission, multi-electrodes, amplification, and oscillators. 1952. (Change 1, Nov. 1955, Inserted.) 215 p. il. Catalog No. D. 101.11:11-662. Price $1.25. *Order from Superintendent of Documents, United States Government Printing Office, Washington* 25, *D. C.*

Theory And Use Of Electronic Test Equipment. This Army technical manual describes the theory and use of nearly every important radio test instrument, such as multimeters, vacuum-tube voltmeters, signal tracers, tube checkers, and other devices used to locate electronic trouble. 1952. 158 p. il. Catalog No. D 101.11:11-664. Price 75¢. *Order from Superintendent of Documents, United States Government Printing Office, Washington, D. C.*

Census of Population 1960: Final Population Counts. Advance Reports: PC(A1). Issued August 1960 to November 1960. Series of 52 reports — one for U. S., each of 50 States, and District of Columbia. Tabulation for States, counties, minor civil divisions, all incorporated places, and unincorporated places of 1,000 or more. Order by title from *Bureau of the Census, Washington* 25, *D. C. Individual reports, 15¢ each; full set for all 52 areas,* $6.25.



Strowger

"That's right, Tom...

<u>is</u> easier to maintain"

Maintenance is an important factor to the buyer of dial switching equipment. That's why Arnold Pearson* always stresses the simple construction of Strowger Automatic. He explains that Strowger operates on a step-by-step principle which keeps repairs and adjustments to a minimum. But that's only part of the story...

Arnold points out that all Strowger switching components are positioned so that the circuit operation can be traced visually. He also mentions the fact that Strowger wearing parts are few and simple to replace. This speeds training of maintenance men and makes trouble-shooting easy!

Are you planning a dial conversion? Then get in touch with us. We'll send *your* AE representative in to help you solve your dial conversion problems. He can give you the complete Strowger story. And, he can provide you with information on how to finance Strowger dial equipment. To contact your AE representative, just write Automatic Electric Sales Corporation, Northlake, Illinois. In Canada, Automatic Electric Sales (Canada) Ltd., 185 Bartley Drive, Toronto 16.

**District Manager, Southeastern District, Automatic Electric Sales Corporation*

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This is the board of directors which will guide Minnesota Telephone Association, Inc., during the coming year. The photograph was taken at conclusion of the 52nd annual Minnesota convention in February, which set a new attendance record of over 1,100. From left, standing, are: HERB LIEN, Blackduck; JOHN MULHEARN, Minneapolis; VIES MARTINSEN, Grand Meadow; JOHN HOLLAND, New Ulm; CHARLES CASHEL, Worthington; KENNETH PETERSON, Kerkhoven; P. M. FERGUSON, JR., Mankato (named vice-president); WALDON E. PIEHN, Harmony; ROBERT BUNKE, Houston; H. JAMES BOYD, Alexandria; A. E. LINDEKUGEL, Fairmont; ELDON ECKLES, Blue Earth; HAROLD ERICSON Hector; and HAROLD BOLLINGER, Waconia. Seated are KENNETH ELLEFSON of Ada and KEITH W. VOGT of St. Paul, respectively re-elected as president and executive secretary-treasurer.

Minnesota Independents Hold Convention: Ellefson Describes Small Company Problem

THE NATION has had a 35 per cent decline over the past 10 years in the number of telephone companies serving the public, and this trend is likely to continue. Kenneth Ellefson, president of Norman County Telephone Co., Ada, Minn., and president of Minnesota Telephone Association, Inc., emphasized in his address to those attending the association's 52nd annual convention at Hotel Radisson, Minneapolis.

Ellefson said "every day it becomes increasingly difficult to maintain the small telephone operation."

"Over the past 10 years," he said, "we have seen a trend towards merger of the small companies to meet such economic pressures as increased costs, higher wages, inflation, and increases in taxes. Undoubtedly as time goes on more and more of the small companies will merge into larger companies to attract finances so that they can afford technological and management know-how."

Two factors which would hasten the trend, he said, are proposals to increase the minimum wage law from $1.00 "to somewhere up to $1.25 per hour," plus "modification or complete abandonment" of the present provision in the federal law exempting small rural telephone companies with less than 750 telephones from paying minimum wages.

"Some small magneto exchanges would not produce enough in gross revenues to hire an operator 24 hours a day, and even some of the larger companies would have serious trouble," Ellefson commented.

"This situation," he said, "in addition to increased costs, demands for increases in service, and higher overall per-station investments can lead to only one thing — adjustment in telephone rates. It is impossible for companies to continue to absorb increased costs, higher wages, inflation, and increases in taxes because most of our companies are just barely getting by now."

The association president also com-

Two Minnesota telephone men with a lot of years in the industry behind them are JIM HERRING of Atwater, and JAY HOUGHTALING of St. Paul. The picture was taken at the 52nd annual convention of Minnesota Telephone Assn., Inc., in Minneapolis.

mented on the four per cent excise tax proposed by Governor Elmer L. Anderson in his recent tax message to the Minnesota Legislature.

"This tax, in addition to the 10 per cent federal excise tax on telephone service," he said, "means that the telephone user would be singled out to pay a 14 per cent tax. We in the industry recognize that we must pay our fair share of taxes, and that taxes are needed, but this proposal has the effect of retarding an essential and necessary utility service."

Despite these problems, Ellefson said the industry had made great progress in the past year, both in expansion and development of new services. Among these is Wide Area Telephone Service, a telephone service offering which introduces bulk rate long distance calling arrangements for customers who are present, or potential, large users of long distance telephone calls.

He also cited data transmission, dial-integrated radio telephone, direct distance dialing, and the introduction of all-number calling.

"Our industry is finding out that every day know-how becomes more and more important, and that we are having to learn new techniques, and new methods," he said. "We have to be flexible so that we can adjust to these new methods."

Another Minnesota Convention speaker, E. Frank Renshaw, North Central telephone area director for the Rural Electrification Administration in Washington, spoke at a special meeting for Minnesota telephone companies which have participated, or plan to participate in REA's telephone loan program.

Reporting that by June, 1959 more than 130,000 Minnesota farms — or 82 per cent of all farms in the state — had telephone service of some sort, Renshaw said the government and "you who are leaders in the telephone industry must be alert and ingenious in finding ways to reach isolated farms and unserved pockets of potential subscribers."

"The state already can boast a substantial record in rural telephones which is well above the national average," he said, "but this record

Officers and directors of the newly-formed North Star chapter of the Independent Telephone Pioneer Association are shown above. Standing from left, are: GORDON BROWN, Enderlin, N. D.; ARTHUR KRUEGER, SR., Minneapolis; J. C. EITZEN of Mountain Lake; JOHN HINRICHSEN of Waconia; A. E. LINDEKUGEL of Fairmont; and JOHN HOLLAND of New Ulm. Seated are: FRANCES SCHNEIDER of Blue Earth, and MRS. BERNICE ARVIG of Twin Valley. Krueger was named president; Brown, vice-president; and Miss Schneider, secretary.

Pictured in front of a USITA management development program display at the Minnesota convention are, from left: KEN JOHNSON of Bricelyn; VAUGH BIEHN of Goodhue; CLARENCE PETERSON of Rochester; and LAMBERT GREENE of Chisago City.

Visiting in the lobby of Hotel Radisson during the Minnesota convention were AL NYBAKKE of Belgrade; KENNETH PETERSON of Kerkhoven; and SILAS LARSON of Franklin.

does not dial any numbers for these families still beyond the stub pole."

The Washington official said that as of January 1, 1961 the REA had approved a total of $35,493,327 in telephone loans to 39 Minnesota borrowers, including 24 commercial companies and 15 cooperative associations. These loans will enable the borrowers to serve 20,995 new subscribers, and provide improved service for 53,364 existing subscribers.

Minnesota Association Secretary Keith W. Vogt reported to the convention that nearly 79,000 new telephones were put into service in Minnesota during 1960 by Northwestern Bell Telephone Co., and 208 Independent telephone companies, bringing the total Minnesota phones in service to 1,389,937.

"In Minnesota over the decade from 1950 to 1960 our population increased 14.5 per cent, while the number of telephones in service increased 52.8 percent," Vogt reported. "Not only was there an impressive growth in phones in service, but in 1960 two additional Bell exchanges and 23 Independent exchanges converted to dial operation. This brings the total Independent exchanges having dial service to 423, out of 58 Independent exchanges in Minnesota."

Breaking the independent figures down, Secretary Vogt said 80 per cent of all Independent exchanges are dial, eight per cent are common battery, and 12 percent are the magneto-exchanges. The number of magneto phones in operation is now at its lowest point — with only 15,324 left in the entire state.

Largest city in Minnesota served by an Independent telephone company is Mankato. Other Independently-served communities include Hastings, Rosemont, Farmington, Hutchison, Fairmont, International Falls, Wheaton, Alexandria, Worthinton, Granite Falls, Blue Earth, Zumbrota, Lake City, and others.

Vogt emphasized to the Minnesota Convention that electronics is opening up broad new fields of service for the nation's telephone industry, over and above the traditional function of providing voice communications for the populace.

He predicted that, long distance toll facilities may soon be used more for data transmission than for conversation, and "slow-scan video" — the use of telephone facilities within a given community to transmit and receive images was described as having an "extremely large potential."

"In our business, everything is getting faster and equipment is getting smaller," Vogt said. "At the same time these faster and more versatile techniques must be convenient and reasonably easy to use . . ."

Director Fred A. Miller, of the National Association of Manufacturers, Minneapolis, told the Minnesota convention, "Americans must get back to the fundamental principle that it is the function of all the people to support the government and not the function of the government to support all the people."

Miller reminded his listeners of what he termed "two important points

Photographed at the Minnesota convention were: DAN CARR, head of the telephone division, Minnesota Railroad & Warehouse Commission; and CLIFFORD PEARCE of Riceville, Ia., president of USITA.

to remember. . . "The first is that the government officials are our representatives. Our votes put them in office and they are responsible to us, not we to them. . . The second point is that it is our money they are spending, as citizens we all too frequently give our representatives a free hand, with no instructions from us, in spending millions at the level and state levels and billions at the national level. ". . . The challenges from abroad are too critical for us to waste a single dollar of our money, or a single hour of our energy, on anything that accomplished less than the very best."

Clifford C. Pearce, president of the U. S. Independent Telephone Association, Washington, D. C., and president of the Farmers Telephone Co., Riceville, Ia., emphasized to the Minnesota convention that, the day is not far off when "Mrs. Housewife will be able to telephone her home from downtown, dial some additional digits, turn on the oven, and set the roast to cooking for dinner."

"And just picture this in the future," Pearce said. "There will be telephone calls and TV programs carried by a world-wide communications network of 50 satellites orbiting 3,000 miles above the earth — handling telephone calls, data transmission, TV to and from the United States and London, Johannesburg, Paris, Sydney, Tokyo and all other major world cities, beamed thousands of miles through space to repeater stations orbiting in space, then

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back to earth and the existing communication networks."

The USITA President said this is "no far-off dream." He said that American Telephone & Telegraph Co. has the green light to go ahead with plans for having a satellite in orbit within a year, on an experimental basis.

"I realize we Independent companies — at least the smaller ones — are not going into the satellite business for a long time to come," he said. "However, we had better start planning today on how satellite communications and other rapidly-occuring inventions are going to affect us tomorrow."

Aiding the growth of the Independent companies — which ordinarily serve the rural and outlying areas — will be the trend for people to move into suburban areas adjacent to large centers of population. Pearce said, the Independent companies will continue to be the beneficiaries of such population shifts away from the cities.

He warned, however, that the telephone industry could remain a growth industry, only if management of the companies — those who deal with broad aims and policies — remain alert to technical developments and new ideas.

"The reason growth is threatened, slowed or stopped is not because the market is saturated: it is because there has been a failure of management," he added.

Pearce said the telephone industry faces increasing competition from other organizations selling communication, but maintained it can keep its traditional leadership in the field "if we use all the tools, know-how and experience which are available to us."

"We can and will meet the competition if we work together," he concluded.

Frank P. Uphues, general manager, sales promotion, Crane & Ordway Co., Oak Park, Ill., warned the Minnesota conventioners that "Every member of a business organization — not just the salesmen — must bear the responsibility for increased sales and profits."

"It is only through profits that we in business can be paid, and only through growth and increased profits of a company that we can all obtain a raise in salaries," he said. "When this truth is clearly understood by your own personnel, then they will all be much more interested in sales promotion, growth and profits."

He said that rather than considering markets "saturated," business must think and act in terms for a further "penetration of markets."

"Fifteen years ago most everyone had one or two radios, a clothes washer and an automobile, yet witness the rise in sales of these products since," he said. "I don't believe that in any real sense, the domestic market for goods and services is any closer to saturation today than it was 15 years ago. Yesterday's luxury becomes tomorrow's necessity!"

Suggesting that the 1961 slogan for business might well be "Pitch In, Peddle and Produce," Uphues declared that an alert management and sales organization must provide leadership and enthusiasm for the overall job of increasing sales and profits.

Directors of Minnesota Telephone Association, Inc., were instructed to prepare a detailed plan for merging of the North Dakota and South Dakota Associations with the Minnesota organization, and to submit this to a mail referendum of the Minnesota members before July 1. A resolution to that effect was approved at closing sessions of the convention.

Robert W. Johnson of St. Paul, attorney for the association, said the proposal for a merger has already been approved by members of the North Dakota and South Dakota associations. Tentative plans call for naming the new association Minnesota-Dakotas Telephone Associations, Inc. The existing board of the Minnesota association would be increased from 15 to 21 in the merged association, with three additional directors from each of the Dakotas.

The 262 telephone companies currently members of the three associations serve 341,000 telephones in the three states. Minnesota has 208 member companies and about 269,000 Independent phones, while there are 72,000 telephones served by 27 member companies in North Dakota and South Dakota.

L. E. Linder of Minot is president of the North Dakota Telephone Association, while a Minnesotan — Kenneth P. Ellefson — holds the distinction of heading both the Minnesota and South Dakota Associations. His ownership of the Norman County Telephone Co. at Ada qualifies him for the Minnesota post, while ownership of the Sioux Valley Telephone Co. at Dell Rapids, S. D., qualified him for the South Dakota presidency.

Before adjourning the four-day convention, delegates re-elected Ellefson as president for another one-year term, and named P. M. Ferguson, Jr., manager of the Mankato Citizens Telephone Co. at Mankato, as vice-president. Keith W. Vogt of St. Paul was re-elected executive secretary-treasurer.

Directors elected include, for three year terms: Ellefson; N. James Boyd of Alexandria; Robert W. Banks of Houston; John R. Milhearn of Minneapolis, and Kenneth M. Peterson, Kerkhoven; and for a one-year term, W. E. Piehn of Harmony.

Organization of a North Star chapter of the Independent Telephone Pioneer Association, with 120 charter members from Minnesota and North and South Dakota, was a feature of the Minnesota convention.

The pioneer group has more than 5,000 members nationally.

Four veteran Minnesota telephone men, Wayne C. Caldwell, Clarkfield, Jay Houghtaling Minneapolis; Edward L. Klingel, St. Paul; and Frank C. Marvin, Zumbrota, were given life memberships in the new chapter.

Officers of a newly-formed North Star chapter of the Independent Telephone Pioneer Association are: Arthur O. Krueger, Sr., Minneapolis, president; Gorden Brown of Enderlin, N. D., vice-president; and Francis Snyder of Blue Earth, secretary.

Directors include the above three plus Mrs. Carroll Arvig of Twin Valley; A. E. Lindekugel of Fairmont; John Hindrichsen of Waconia; John Holland of New Ulm; J. C. Eitzen Mountain Lake; and M. Miller of Cannon Falls.

New Products' Showcase

SUPPLIES And EQUIPMENT

By DICK REYNOLDS

AM Generator

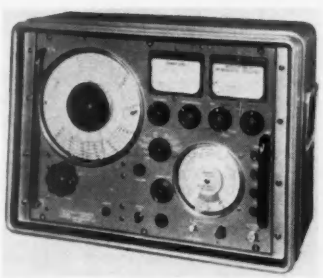
MARCONI Instruments has announced a new AM Generator, Model 144H, with wide frequency coverage from 10 Kc to 72 Mc. Features of this new design include a calibrated fine frequency control, automatic level

control and output voltage accuracy to 0.5dB. Carrier frequency drift does not exceed 0.002% in a ten minute period.

Applications for this new instrument include receiver tests at both RF and IF, network response measurements, RF bridge excitation and transmission measurements. *NP* 591.

FM Signal Generator

FOR TESTING Command Receivers operating in the 400-550Mc band, Marconi Instruments has produced an

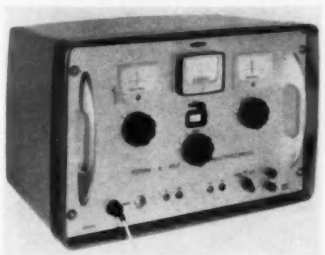


FM Generator Model 1066B/2. With this instrument, carrier frequency can be set precisely to any 1Mc channel and multiple tone modulation to 300Kc deviation can be applied.

Additional features include a calibrated fine frequency control for bandwidth measurements, a modulation compression circuit for constant FM deviation and a mutual inductance piston attenuator of very low VSWR for RF level control. *NP* 592.

Inductance Bridge

A NEW Cintel Bridge, Model 1854, that measures mutual and self inductance from 0.001mH to 30mH directly with 1% accuracy, also has been announced by Marconi Instruments. Resistances from 0.001Ω to 3KΩ are also measured. A four terminal con-



nection is made to the component under test, avoiding inaccuracies due to connecting leads.

A fully transistorized built-in oscillator and phase sensitive detector operate the bridge. The measuring frequency is set at 1,592 cps (10,000 radians/sec.), simplifying Q calculations. *Check NP* 593.

L. C. R. Bridge

MARCONI Instruments New Universal Bridge Model 1313 measures L to 110H, C to 110μF and R to 110MΩ all with ¼% accuracy. Measurements may be made at 1 and 10Kc with an internal oscillator or through-out the audio range with external source and detector. Readout is direct without use of multiplication factors.

A feature of the unit is the main balance control which has 110 discrete

steps, eliminating the conventional balance potentiometer. An interpolation control adjusts for final balance to ¼% accuracy. *Check NP* 594.

Communications Receiver

COLLINS Radio Company has introduced a completely new HF communication receiver, the 51S-1.

Continuous coverage of the 2-30 megacycle range is provided in one mc bands with one kilocycle increments on the main tuning dial. Additional coverage from 0.2-2.0 mc permits broadcast monitoring or laboratory use. Reception of Upper Side-

band, Lower Sideband, AM or CW signals is provided at any frequency within the tuning range.

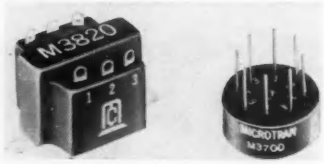
The 51S-1 Receiver is finished in a gray simulated leather panel and gray enamel cabinet. Operation is

from either a 115 or 230 volt, 50-400 cps power source. An optional 28 volt, dc model is also available. The receiver may be mounted in a 19″ RETMA rack using a special hardware kit. *Check NP* 595.

Toroids & Transformers

MICROTRAN Company, Inc., has announced new epoxy molded toroids and molded miniaturized transistor transformers.

The toroids are custom engineered to specifications in the following ranges: frequency range: 20 cycles — 100 kc; power level: Up to 150

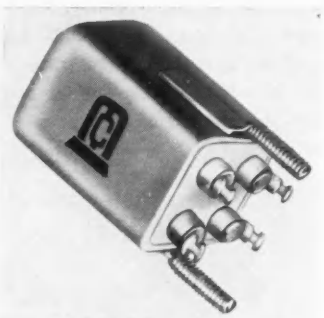


watts; operating temp. range: —65 to 130° C; size range: Approximately 3/16 to 4″ O. D.; DC current range: Depends on the size, frequency & power level.

Additional molded transformers have also been added to Microtran's catalog line. Impedance ratings of these new items have been designed to match many of the new transistor circuits. *Check NP* 596.

Converter Transformer

MICROTRAN Company, Inc., also has announced a new item in its catalog line of d.c. to d.c. converter trans-



formers. The new transistor blocking oscillator type .400 cycles approximate repetition rate. Designed for primary of 3 volts d.c. at 20 Ma. input, these units will furnish output voltages in the range of 1000 volts d.c. at 25 Ma.

This unit is supplied in hermetically sealed MIL-T-27A can, MIL designation TF4RXOAG, or an open frame construction. On special order, unit may be obtained in epoxy molded construction with pins or lugs. *NP* 597.

Lighting Unit

A NEW automatic emergency lighting unit to provide protection against hazards of power failure has been developed by Exide Industrial Marketing Division of The Electric Storage Battery Company. Fully automatic, the unit operates instantaneously if normal power fails and shuts itself off when power is restored.

The dry-cell-equipped Model D can be installed and left unattended for the entire service life of the battery. A fresh battery can be installed in the unit in a few minutes.

Model D can be mounted on a wall shelf or bracket. It also can be mounted on a special bracket specifically

designed to simplify mounting of most Exide Lightguard models. The bracket matches the Lightguards in color and design and can be quickly installed on wood, tile or masonry walls, with wood screws, toggle bolts, or lag screws. *Check NP* 598.

Hydraulic Power Pump

A NEW miniature size, portable two-speed hydraulic power pump weighing 14 pounds and capable of developing pressures up to 10,000 psi, has been announced by Greenlee Tool Co.

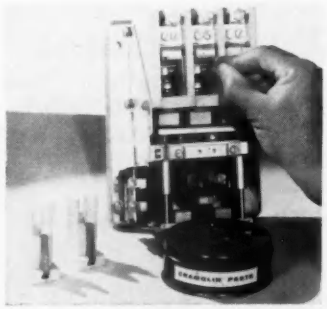
Approximate pumping capacity is 80 cubic inches at 30 psi, 20 cubic inches at 100 psi, and 4 cubic inches at 10,000 psi. The pump develops 10,000 psi intermittent, 6,000 psi continuous.

The pump is powered by a built-in 115 v, ac-dc universal motor and is

equipped with a built-in, two-way control valve. For remote control operation, Model 1729-PO is offered with a pendant electrical switch and an extra length of electrical power cord. *Check NP* 599.

Contact Cleaner

CAIG LABORATORIES, Inc. has announced the addition of "Cramolin-Paste" to its line of contact cleaners and preservative products. The new contact cleaner is in semi-solid form and has been applied successfully to



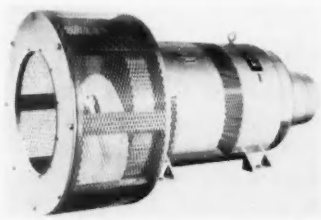
applications where high amperages and/or high voltages are used.

The paste is easily applied on contact surfaces, as it thins out when wiped on, and contact pressure reduces to a thinner film. Paste may be handled without harm to skin as it contains no alkalis or acids. *NP* 600.

Motor-Generator

KATO Engineering Co. has announced a new motor-generator, with specially designed fly-wheel.

This motor generator set features a brushless type generator with direct



connected separate exciter. A Kato mag. amp regulator provides 1½ per cent of rated voltage under one fourth load to full load conditions. Rectifier assembly is mounted on end of shaft for easy replacement of rectifiers. *Check NP* 601.

Squirt Boom

HOLAN CORPORATION has announced a new aerial device known as the Series 8000 Squirt Boom. The new equipment can be operated by one man from controls located in the bucket.

The fiberglass bucket, yoke and boom can withstand a 73,000-volt (A.C.) bucket-to-ground test. The fiberglass boom, by means of a double-acting hydraulic cylinder, ex-

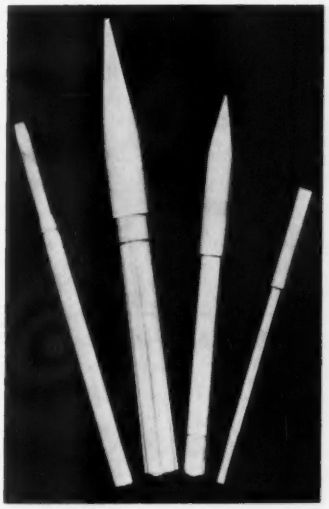
tends 10′ 7″ from the end of the main boom and can be stopped for work at any point in its travel.

Master-slave type hydraulic controls are located on the inboard edge of the bucket and on the superstructure. The unit can also be operated from inside the cab with the solenoid-controlled over-ride. *Check NP* 602.

Soldering Tips

ANNOUNCEMENT of new Non-Freezing, Armor-Clad Soldering Iron Tips that do not require maintenance has been made by Engineering & Electronic Devices Inc.

The tips are made from select drawn copper rod and iron plated with electrolytic iron to a very high standard



of non-porosity. Permanently attached alloy sleeves around the shank eliminate sticking or freezing and completely do away with the need of constant tip removal from iron.

Armor-cladding protects against pitting and oxidation and allows tip to retain its original shape and right point to the very last joint. *NP* 603.

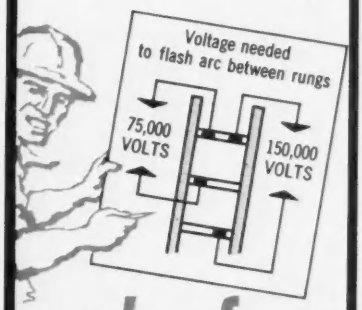
Program Line Amplifier

A NEW self contained power amplifier for program line feed is being produced by Hughey & Phillips, Inc. Employing only two vacuum tubes,

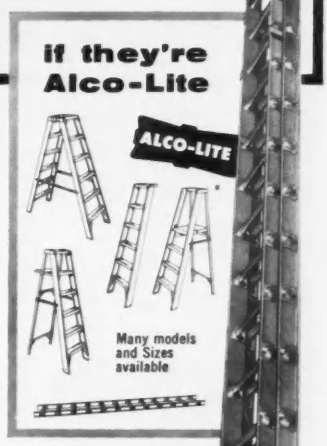
the Modle LA-429A Amplifier provides a power output of ten watts and requires 3½ inches of rack space.

The chassis contains mounting arrangements for a Cable Equalizer and an output Distribution Network for feeding twenty lines. A total of one hundred lines may be fed by a single amplifier. *Check NP* 604.

fiberglass ladders are strong



and safe



Non-conducting, non-absorbent, yet strong and light as an aluminum ladder! Power company tests indicate Alco-Lite Fiberglass Ladders extremely safe around high voltages. Resist chemicals, acids, gases, fumes, and moisture.

Alco-Lite Fiberglass Ladders meet ASA Code A14.2 for portable *metal* ladders. The wider side rails are SOLID fiberglass—not plastic covered soft wood. The wide steps and rungs are high tensile strength aluminum. More riveting and bracing throughout!

Ladders safe, strong, more rigid, have longer life, because of exclusive design and construction. Maintenance negligible. *SEND FOR CATALOG!*

Original Manufacturer of ALUMINUM Ladders

Aluminum Ladder Co.

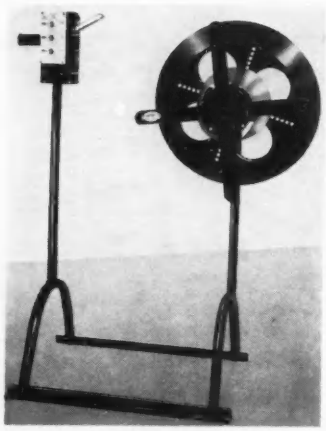
West Darlington Street Ext.

FLORENCE 1 S. CAROLINA

All-In-One Frame

HYKON Manufacturing Co. has announced an all-welded steel frame for its Model TUMS Wire Measuring Unit.

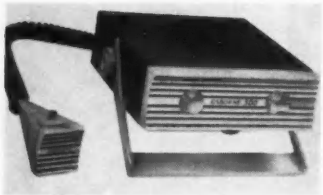
The one-piece design takes minimum floor space, stands firmly as a portable unit, or may be lagged to



the floor in a permanent location. The frame, meter and take-up reel weigh 39 pounds, require only a minimum space 18″ wide by 24″ long by 42″ high. *Check NP* 605.

Transceiver

A NEW, all transistor Citizens' Band transceiver has been announced by Osborne Electronics Corp. Opera-



ting on any of the 23 allocated Citizens' Band channels, it features a 4 channel selector with plug in crystals; and a metal die-cast case that measures 1⅞ x 6 x 7 inches. Also included as standard equipment is a squelch control and noise limiter plus a push-to-talk microphone with a 3 foot cord.

The small size of the Osborne 300 makes it a mobile unit that will fit under any dash, even the smallest sports car, not taking away valuable leg room. Because of the low operating power (no more than an automobile dome light) failure to turn the set off will not cause appreciable battery drain even if left on over night. Also available is an accessory mobile/marine mounting bracket which will provide a simple snap-action release for easy removal. *Check NP* 606.

Adjustable Contactor

AN ADJUSTABLE contactor, for use on cable under pressure where temperature change is severe, is the

latest item to be announced by S & G Manufacturing Corporation.

This contactor is set at installation with air pressure, and temperature change will not affect its setting. It is air tight, waterproof, and furnished to operate off either working or vacant cable pairs.

The contactor can be set at any required alarm pressure by adding to or reducing the pressure in the chamber through the "F" valve. Other type and sizes and varying styles of contactors are also available. *NP* 607.

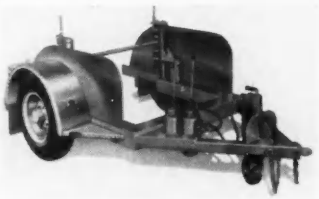
Rolling Service Ladder

THE NEW Alco-Lite Rolling Service Ladder is a completely self-supporting extension ladder unit and requires no secondary support. The ladder is mounted on a rigid, welded

steel frame that is equipped with 8″ semi-pneumatic wheels and hand-retractable, swivel type front casters. The large rear wheels move freely over rough floors and allow the unit to be guided easily. *Check NP* 608.

Cable Reel Trailer

A NEW Series RM Reel-Master Hydraulic Cable Reel Trailer which can be operated by one man, has recently been added to the line of Powers-American utility bodies, diggers and derricks manufactured by McCabe-Powers Body Company.



When it is necessary to park this trailer on uneven ground, the independently operated hydraulic cylinders raise or lower either side of the reel to facilitate removal or cable payout.

Reel-Master Trailers are available in three sizes, Series RM-8, RM-10 and RM-12 for carrying reels up to 54″ wide and 96″ in diameter and weighing up to 8000, 10,000 and 12,000 lbs. *Check NP* 609.

NEW PRODUCTS' DEPARTMENT **4-1-61**
Telephone Engineer Publishing Corporation
7720 North Sheridan Road, Chicago 26, Illinois
ATTN: Dick Reynolds

Please send me additional information concerning the following New Products.

NP 591..... NP 592..... NP 593..... NP 594..... NP 595.....
NP 596..... NP 597..... NP 598..... NP 599..... NP 600.....
NP 601..... NP 602..... NP 603..... NP 604..... NP 605.....
NP 606..... NP 607..... NP 608..... NP 609.....

NAME ..... POSITION .....
COMPANY .....
ADDRESS .....
CITY ..... ZONE..... STATE .....
I am a subscriber to TE&M ☐ Yes ☐ No (check one)

Telephone Industry News Highlights

COAST-TO-COAST REPORTS

- So. Nevada Tel. and Central Tel. directors to recommend merger to shareholders . . . General of Mich. seeks $4 million revenue boost . . . REA names Dell deputy administrator.
- Mankato Jaycees honor Joseph Rassieur . . . Lincoln Tel. & Tel. wins ad award . . . United companies announce management changes.

Directors of So. Nevada Tel. and Central Tel. Agree To Recommend Merger To Shareholders

LAST MONTH the boards of directors of Southern Nevada Telephone Co. and Central Telephone Co. agreed to recommend to the shareholders of the respective companies a combination of the two companies. The proposed combination is subject to certain contingencies, including favorable tax rulings by the Internal Revenue Service, authorization by regulatory authorities having jurisdiction, and approval by the shareholders of both companies.

Under the terms of the proposed combination each share of Southern Nevada Telephone Co. common stock would represent one and six-tenths (1.6) shares of common stock of the combined company. Each common share of Central Telephone Co. would represent one share of common stock of the combined company.

It is expected that initially the annual dividend rate on common stock of the combined company would be 88 cents per share, which is the current rate on Central Telephone Co. common stock. On this basis, Southern Nevada Telephone Co. common stockholders would have an increase of about 17.3 percent over the current yield from their investment.

Holders of preferred shares of Southern Nevada Telephone Co. would receive substantially identical preferred shares of the combined company, with conversion privileges of the two convertible series adjusted to provide one and six-tenths (1.6) shares of common stock of the combined company for each common share of Southern Nevada Telephone Co. to which the convertible preferred shares are now entitled on conversions.

The properties of Southern Nevada Telephone Co. would be operated as the Southern Nevada Telephone Co. Division of the combined company, with no changes contemplated in the operating organization or basic method of operation.

Gross plant account of Southern Nevada Telephone Co. was $23,014,226 at December 31, 1960. Its 52,922 company-owned telephones at that date, serving Las Vegas and nearby territory, were 97.2 percent dial automatic and are expected to be 100 percent automatic by the end of this year. Telephones in service showed a 16.3 percent gain in 1960, which is believed to be the highest percentage gain for any Independent telephone company in the United States.

Operating revenues for the year ended December 31, 1960, were $7,523,194. Net income for common stock was $1,002,340 or $2.14 per share on average shares. The current annual dividend rate on Southern Nevada Telephone Co. common stock is $1.20 per share.

Central Telephone Company and its subsidiaries own and operate 141 exchanges in six states, serving 278,254 company-owned telephones at December 31, 1960. Consolidated gross plant account at December 31, 1960, was $90,736,978 and consolidated operating revenues for the year then ended were $24,590,561. Consolidated earnings for Central Telephone Co. common stock for 1960 were $2,576,276 or $1.67 per share on average shares. Central Telephone Co., its subsidiaries, and its affiliate, Southeastern Telephone Co., which owns and operates approximately

42,000 company-owned telephones in northern Florida, comprise one of the larger Independent telephone groups in the country.

General of Mich. Seeks $4 Million Revenue Boost

AN APPLICATION filed with the Michigan Public Service Commission last month by General Telephone Co. of Mich. seeks authority to increase company revenue by approximately $4 million annually.

Company President T. A. Saunders stated, "since 1956, over 70 million dollars have been expended to improve and expand customer service facilities. Revenue from this increased expenditure has not been sufficient to maintain an adequate return to our investors."

He noted that company investment in phone plant had more than doubled in five years, showing an increase of 123.45 per cent.

"Charges for today's service were established on costs based as far back as 1951," Saunders said, "while those costs over which we have no direct control, such as taxes, wages, material and depreciation have all risen steadily since that time. The costs of operating our business, over which we do have control, have actually decreased slightly in the last five years."

Documenting the company's service improvement, the chief executive listed 49 exchange communities changed to dial operation, pushing percentage up from 51 to 86 percent. Customers have increased by 75,112, a boost of 48 percent, while Direct Distance Dialing and Extended Area Service have been initiated in many areas.

"Operating efficiency and economies have been successful in delaying this move for revenue increases for many months. It is now necessary to reverse the downward trend of earnings by bolstered revenue," Saunders said.

Assuming approval of the entire amount of revenue increase sought, after Federal taxes, the company would retain approximately $1,920,000 annually.

REA Names R. A. Dell Deputy Administrator

RICHARD A. DELL, veteran of 23 years experience in cooperative rural utility service, assumed his duties as Deputy Administrator of the Rural Electrification Administration last month.

Dell, a Georgian, played a major role in developing sound loans and strong cooperatives to bring electric service to farmers in the sparsely settled rural areas of the northern Great Plains. He also helped to develop REA's telephone loan program shortly after it was authorized by Congress in 1949.

From March 1955 until his appointment, Dell was on the staff of the National Rural Electric Cooperative Association, an organization of REA electric borrowers, in Washington, D. C. His most recent position with NRECA was director of the Legislative and Research Department.

Before joining NRECA, Dell had spent 18 years with REA, starting in June 1937 as a power use specialist in the field. Rising through positions of increasing responsibility, he served consecutively as head of three REA divisions: Applications and Loans, Telephone Loans, and Program Analysis. Earlier Federal service included jobs with the General Accounting Office and the Agricultural Adjustment Administration. At one time, he was residential sales supervisor with commercial electric companies in Tennessee.

As head of an operating section in REA, Dell helped farm people to prepare feasible loan applications to finance the first rural power lines in parts of Minnesota and the two Da-

The USITA Subcommittee on Direct Distance Dialing met with representatives of A.T. & T. Co., in New York City on February 23 and 24 for discussions of the dial conversion of TWX service, technical details of the Wide Area Telephone Service plan recently introduced by the Bell System, and several operating details of DDD. Attending the meeting were (l. to r.): J. P. RINGLAND, AT&T; R. J. BRADY, AT&T; J. J. GRUMBLATT, General Telephone & Electronics Service Corp.; E. F. CORBIN, AT&T; C. F. ROTH, AT&T; C. M. DAVIS, General Telephone Co. of Calif.; Z. E. BARNES, AT&T; W. C. FARRELL AT&T; A. KOHAN, AT&T; H. A. BARROWS, California Water & Telephone Co.; O. MYERS, Bell Telephone Laboratories; F. L. KAHN, Automatic Electric Laboratories; and J. W. McNAMARA, West Coast Telephone Co.

kotas. The cooperatives he helped create are thriving service organizations today. He is a determined advocate of area coverage for rural electric and telephone service.

Dell was born on a farm in Screven County, Georgia, on December 1, 1906. He received a Bachelor of Arts degree from Emory University, Atlanta. Dell and his wife, and one daughter Susan, live in Falls Church, Virginia.

Mankato Jaycees Honor Rassieur of Mankato Tel.

LAST MONTH the Mankato (Minn.) Jaycees named Joseph Rassieur, switchman for the Mankato Citizens' Telephone Co., as the group's "Outstanding Young Man," and awarded him the organization's distinguished service award.

The 36-year-old telephone company employe was cited for work in the Jaycees, his church, cub scouting and civil defense along with other local organizations.

He is best known for Jaycee activities, being a past president of the Mankato chapter. In addition to involvement in all Junior Chamber activities, he was singled out especially for the successful promotion of the *Get Out the Vote* campaign, The United Fund Youth Guidance Council and Ambulance Action committee of the Jaycees.

JOSEPH RASSIEUR (right), switchman for the Mankato (Minn.) Citizens Tel. Co., named Mankato's Outstanding Young Man last month at the Jaycee Bosses' Night banquet, receives congratulations from BERT ROSE, general manager of the Minnesota Vikings pro football team, speaker at the banquet. Rassieur was honored for civic, church and Jaycee work.

He piloted such projects as the teen age rodeo, the Christmas shopping tour for needy children, Halloween parties for Mankato children and soap box derby.

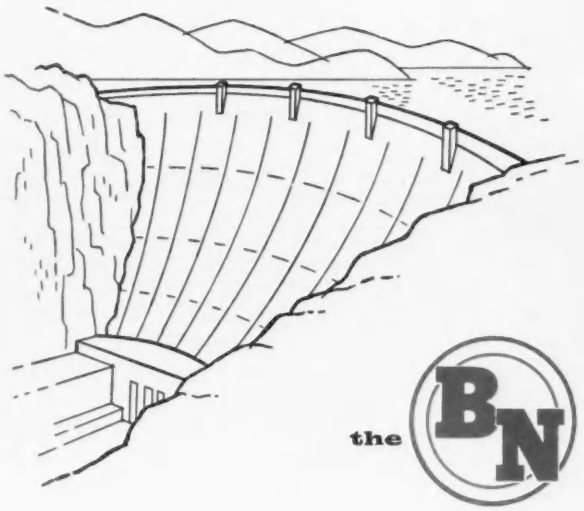
He was instrumental in setting up two clinics for polio shots where thousands of persons who otherwise might not have received the then new Salk polio vaccine were given that opportunity.

Rassieur is a native of Des Moines, Iowa and has lived in Mankato since 1946 following discharge from the navy. He attended Drake University at Des Moines until entering the service in World War II and has also attended the University of Houston, Texas and Wright Junior college in Chicago.

Lincoln Tel. & Tel. Co. Wins Ad Club Award

THE ADVERTISING campaign The Lincoln (Neb.) Telephone & Tele-

PROVEN BEST for strength



Strong, extruded aluminum posts, tempered glass and porcelain enameled steel panels provide exceptional strength and durability.

the BN Booth

For full particulars, consult your distributor or write direct ...
Benner-Nawman, Inc., 3421 Hollis Street, Oakland 8, California.

a B-N booth is a busy booth!

graph Co. used to announce direct distance dialing won the first place award of the Advertising Club of Lincoln for 1960.

The LT&T campaign on DDD was directed generally at three groups:

(1) Customers at Lincoln and 14 near-by exchanges in which coast-to-coast direct distance dialing was being offered for the first time.

(2) Customers at Beatrice, Auburn, David City, Wahoo and Hebron and near-by exchanges who had been receiving direct distance dialing to Nebraska points and who now would receive coast-to-coast service.

(3) Customers of four connecting companies in the DDD area.

The cutover took place on December 4, 1960, and the advertising campaign was divided into five general phases. The advance notification began in September with group meetings of employes who were given booklets of instruction and were shown demonstrations of DDD on an electrically operated board. Stories for employe information were also printed in the *Lincoln Telephone News*, a monthly magazine for LT&T employes. Letters were written to customers whose telephone numbers would be changed to seven numerals. This was coordinated with a news release and advance advertising.

This was followed by an intermediate program of notification of the date and education of use of the service. Booklets of instruction were printed and mailed to 65,000 customers in LT&T and connecting company exchanges. Special envelopes were used to announce the date. Thirty-five women then called some 50,000 subscribers at Lincoln and 14 near-by exchanges to go over the instructions and answer questions. Personal interviews were made with larger business users.

The 36-page booklets contained seven pages of instructions with examples of how to dial calls as well as listings of 1,500 dialable points with code numbers. Indexed pages for personal listings were also provided.

Newspaper, radio and television advertising was used to announce the mailing of the booklets and provide a build-up to the date of service.

On behalf of the Advertising Club of Lincoln, Neb., Mayor BARTLETT BOYLES, at left, presents the first place trophy for 1960 to A. B. CORMAN, Lincoln Tel. & Tel. Co. advertising manager, for the firm's campaign on direct distance dialing. During National Advertising Week each year the ad club sponsors a public exhibit in which Lincoln advertisers present displays of advertising programs and campaigns. LT&T was presented with a permanent first place plaque and a "traveling" trophy (pictured above) which the winning firm each year may keep for one year.

Thirty-two 24-sheet posters were displayed in billboards in the Lincoln area to announce the date of service and for 30 days after the cutover to promote the use of the service.

Advertising and publicity was concentrated just prior to and on the date of the cutover. Full page newspaper advertisements were used at principal exchanges along with radio and television announcements.

A 60-second film was made for television in which a "customer" demonstrated the dialing of a call to a telephone in Chicago and the use of the DDD booklet of instructions. Newspaper ads also carried a step-by-step explanation of the dialing of calls.

Other media included talks and demonstrations before school groups and civic clubs, and advertisements in miscellaneous publications. Two-color posters and counter cards were run on silk screen for use in company business offices and for display in windows of local merchants who wished to use them. Separate posters were prepared for use before and after the cutover. Ads were also prepared for printing on the face of envelopes used for mailing monthly statements.

Special advertising was prepared for use in the telephone directory. The directory also contained detailed instructions for the use of direct distance dialing and a list of dialable points with code numbers.

Following the conversion, a program of promotion has been carried out and this will be continued indefinitely.

United Companies Announce Top Management Changes

A SERIES of management changes in subsidiary organizations of United Utilities, Inc., has been announced jointly by the operating heads of the United Telephone Co. of the West and the United Telephone Companies of Arkansas and Missouri.

President Otto Fuerst, of the United Telephone Co. of the West, has announced that effective April 1, Verne E. Hix will become assistant to the president at the general office location in Scottsbluff, Neb. Prior to this assignment, Hix served as general commercial superintendent for the United Telephone Companies of Arkansas, Kansas and Missouri at the general office in Kansas City, Mo.

Hix entered the telephone industry as a lineman with the Iowa State Telephone Co. in 1939. After serving in the South Pacific Theater with the Army Signal Corps from 1942 to 1945, he transferred to the Central Missouri and Arkansas Associated

VERNE E. HIX

JOSEPH P. TROTTER

DONALD H. ZEHNDER

WILMOT POESE

Telephone Companies at Warrensburg, Mo. as plant superintendent. When these properties were merged with the United System in 1954, he transferred to the Kansas City office as purchasing agent and plant engineer for the United Telephone Companies of Arkansas, Kansas and Missouri. Hix was promoted to outside plant and staff engineer in 1956 and was named general commercial superintendent of the three operating companies in 1958.

J. G. Kreamer, president of the United Telephone Companies of Arkansas, Kansas and Missouri announced that Joseph P. Trotter has been named general commercial superintendent of United Telephone Companies of Arkansas, Kansas and Missouri, Kansas City, Mo. After three years in the Navy and graduation from Baker University, Trotter started in 1949 with United Telephone Co. in Clinton, Mo. as assistant division commercial and traffic superintendent. In 1955 he transferred to Kansas City as assistant to the general traffic superintendent, and was made general traffic superintendent in 1957. Trotter will now be in charge of commercial operations in the three states which United serves through 135 exchanges and 112,000 telephones.

Kreamer also reports that Donald H. Zehnder has been promoted from field traffic supervisor to general traffic superintendent. Zehnder started with United as a lineman in 1949. He became local manager at Warsaw, Mo. in 1953, and assistant district manager at Maryville, Mo. in 1956. He was then transferred to the traffic department in Kansas City in 1958 as field traffic supervisor.

Wilmot Poese, who started with United in 1949, has been promoted to field traffic supervisor on the Kansas City office staff. Poese had been commercial and traffic supervisor at Rolla, Mo.

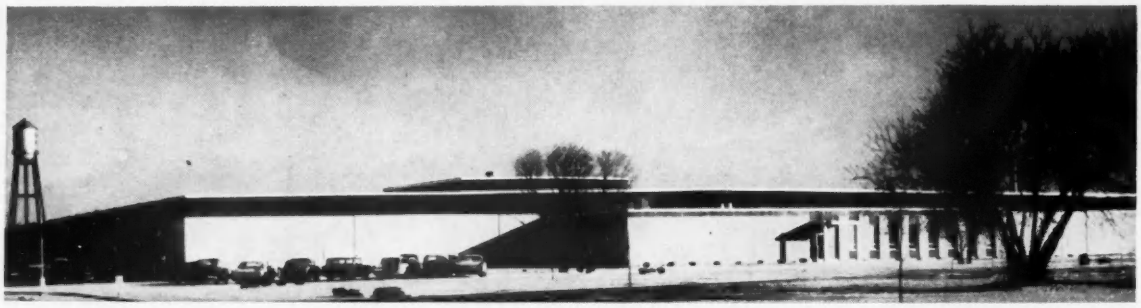
Birmingham Addresses Western Society of Engrs.

MEMBERS of the Western Society of Engineers in Chicago at their February 8th noon meeting received an inkling of the engineering and management techniques that have made the telephone industry a leader in the Western world.

The occasion was the first program of the Society's new Management Division. A telephone man, A. F. Birmingham, A. T. & T. Co., staff supervisor at Springfield, Ill., described the growing use of index numbers to portray quickly to management the areas calling for attention. The technique has been used by telephone traffic departments for some time, and in the last two or three years has been finding increasing application in Plant Department results reporting, especially in the long distance and private line service field.

The new Division's initial meeting turned in some good index results of its own. It was the first noon meeting in the Society's history with a complete sell-out of every seat. In fact, there was an overflow for a business efficiency index of 100+%. The reservation index was up in the high 90's, and the queries index was also high.

Among industry leaders present were Frank D. Reese, president of Automatic Electric Laboratories; Hubert Tremblay of ITT-Kellogg; B. C. Hurley, area plant manager of A.T.& T. Co. in Kansas City; A.T.&T. Co. District Plant Superintendents H. L. Stucky of Minneapolis, Clarence Link of Omaha, George E. Hanson of Springfield and S. M. Arnold and J. E. Greek of Chicago; Oscar F. Gil-



A new, modern manufacturing plant opened at Cass City, Mich., will more than double the capacity of General Insulated Wire Works, a division of General Cable Corp. General Insulated's new plant places the company in a more central location to better serve its customers and expedite the handling of orders. Headquarters management will be maintained at the Providence, R. I. plant.

bertson and Maurice W. Lane, Superintendents of Engineering of W.E. Co.

Otis L. Dodge, A.T.&T. Co. division Plant Superintendent at Chicago, introduced the speaker. Manager of the meeting was Wm. V. Sayner.

Fiore Resigns From ITT To Join BDSA As Advisor

CAESAR FRANK FIORE recently resigned his post with the International Telephone & Telegraph Corp. to accept a government appointment as Telecommunications Advisor-Latin America, with the Business & Defense Services Administration, U. S. Department of Commerce. In this capacity, he will conduct the study of existing and projected communications systems through the area announced earlier.

Fiore recently concluded a six-month tour on loan from ITT to the BDSA Communications Industries Division as assistant director for Mobilization Planning.

Special USI PABX Aids Visually Handicapped

MRS. WINIFRED ANDERSON, blind for the past 12 years, is now employed as a switchboard operator for the Nevada Employment Security Department, thanks to state officials and a big assist by the Southern Nevada Telephone Co., Las Vegas.

Richard Ham, executive director of the department, and Clark Hardy manager of the Las Vegas office, conferred with Fred Barnwell of special services, many months ago concerning a special switchboard which could be operated by a blind person.

A special PABX was ordered from the United States Instrument Corp., Charlottesville, Va. It has tactile indicators which "pop up" from the center of buttons to indicate calls. The operator passes her fingers over the small keyboard lightly to determine which line has the call. This is the first board of this type ever used in the state of Nevada.

PABX Service advisors Violet Swartz and Helen Eleopulos spent many days with Mrs. Anderson as she familiarized herself with the operation of the switchboard.

Vice President W. T. Geary explained the operation of the board to Governor Grant Sawyer and Ham during their recent visit to Southern Nevada.

Mrs. WINIFRED ANDERSON operates new switchboard designed by United States Instrument Corp. for the visually handicapped as (l. to r.) CLARK HARDY, manager Las Vegas office of the Nevada State Employment office, and FRANK ROGERS and WALTER T. GEARY observe the switchboard in action.

General Dynamics | Electronics Names Herrman, Ad Director

WILLIAM H. HERRMAN has been named director of advertising and acting director of public relations for General Dynamics|Electronics, it was announced last month by J. G. Anderson, vice president-marketing.

Herrman previously was manager of advertising and sales promotion for the Electronics Division of Strom-

WILLIAM H. HERRMAN

berg-Carlson. Stromberg-Carlson plus the separable electronics operations of other General Dynamics divisions, were combined recently to create General Dynamics|Electronics.

Herrman came to Stromberg-Carlson last July from Hoffman Electronics Corp., Los Angeles, where he was director of advertising and public relations for the military products division. Prior to joining Hoffman in 1955, he was with Fairchild Publications, Inc., New York.

Ralph Rothman Joins Comptometer

RALPH E. ROTHMAN'S appointment as sales manager of Independent telephone industry sales for the Electrowriter Sales Division of Comptometer Corp., Chicago, has been announced by General Sales Manager, James G. Johnson. Rothman will direct all sales activity with the Independent telephone industry.

Rothman was formerly with the General Cable Corp. as assistant sales manager of Independent telephone

RALPH E. ROTHMAN

company sales. Prior to that, he was Southwestern regional sales manager for General Cable.

Rothman is a Major in the Marine Corps Reserve, and flies periodically from the Glenview Naval Station. During World War II, he flew fighter planes in the South Pacific. In the Korean conflict he piloted transports. He is a graduate in mechanical engineering from Texas A & M College.

New Acoustic Structures Div. Mgr. For Suttle

C. L. LINEBERGER, executive vice president, Suttle Equipment Corp., Chicago, has announced that William E. Dell is now manager of the company's Acoustic Structures Division. This division is the newest of the several Suttle operating divisions which now include the supply division, manufacturing division, printing division, and a subsidiary, the Suttle Directory Co., Lawrenceville, Ill.

The appointment of S. E. YEATON as assistant vice president of General Cable Corp., New York City has been announced by J. R. MacDonald, president and chairman of the board of the corporation. Yeaton is well known in the wire and cable industry having directed sales of electrical wire and cable for John A. Roebling's Sons Corp. for several years.

Suttle Equipment Corporation, long time manufacturer of telephone booths and special acoustic structures, has entered the industrial sound control panel, audiometer room, sound proof ducts and door field. Also manufactured are office equipment sound control cabinets, sound proofed projection booths, quiet rooms, sound controlled test rooms, anechoic sound chambers, and a number of special application structures.

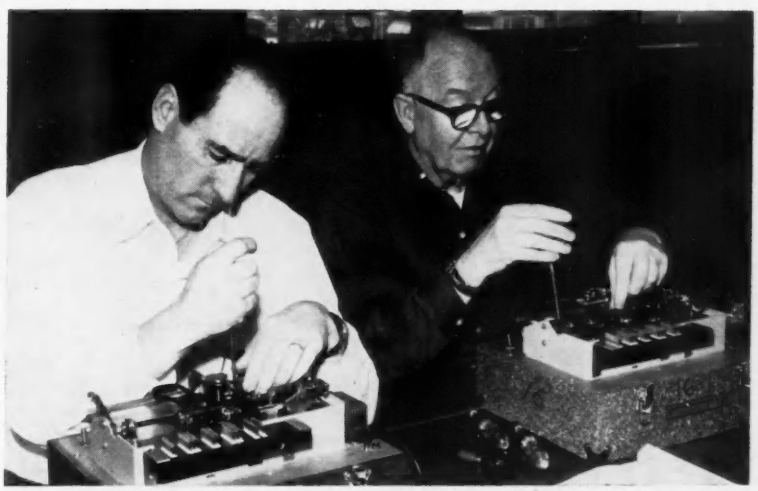
Dell majored in Mechanical Engineering at Northwestern University and joins Suttle after eight years in the steel and non-ferrous metals fabrication field. He will office at the company's Chicago office, 135 South LaSalle St., Chicago.

Alaskan Men Attend School; Find Weather Is Colder

GOING south for six weeks in the heart of winter sounded good to two Alaskan telephone men. But when they got "south" to Rochester, N. Y. the temperature was actually 10 degrees cooler than in Anchorage — at least for a spell.

Glenn Stoneman and Charles Adams of the Trans-Alaska Telephone Co. have some interesting addresses on the roster of the Stromberg-Carlson XY Dial Training School. One lives in the village called North Pole, Alaska; the other is based in Anchorage which is the company headquarters.

"The only time cold weather fazed me was when I first walked down the main street in Anchorage," said Charles Adams. "All the cars parked by the roadside had their motors running while the people were shopping in the stores. Didn't dare turn



GLENN STONEMAN (left) and CHARLES ADAMS, of the Trans-Alaska Telephone System came south for Stromberg-Carlson's XY Dial Training School and found Rochester, N. Y. weather 10 degrees cooler.

New New — New New — New New Write for Sample

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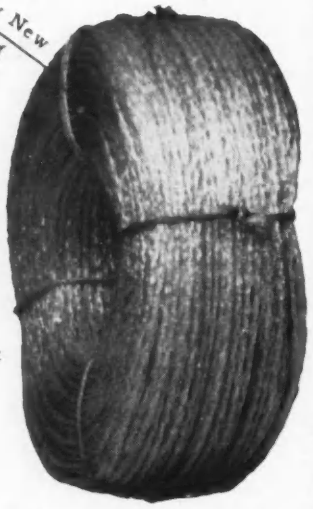
You'll be amazed at its Strength



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them off; it was so cold they'd never start."

Glenn Stoneman, an avid amateur photographer, has taken more than 2000 color slides while in Alaska. One of his favorite shots pictures a team of huskies bringing in blocks of fresh water for winter use in Kotzebue where the houses hug the shore along Bering Strait where any well would be affected by the ocean.

"When the fresh water lakes freeze over," Stoneman reported, "the Eskimos chop out cakes of ice and bring them to the village by dog sled. Every home in Kotzebue has its own private drinking water system in these fresh water cakes piled up out in the back yard."

Adams is general inside plant superintendent for Trans-Alaska Tel., while Stoneman serves as supervisor of the northern division. Both men were part of the 52nd XY Dial class which had an enrollment of 39 persons — mostly from Independent telephone companies.

Sanford F. Essig Dies In Accident

SANFORD F. ESSIG, 64, well-known electronic scientist of International Telephone & Telegraph Corp., was killed at Fort Wayne, Ind., March 5, when an automobile in which he was riding was in a collision with a second car. Mr. Essig's wife, Vera, was injured but is expected to recover.

Mr. Essig, who was an authority on image electron tubes, was manager of the photo devices development laboratory at ITT Federal Laboratories in Fort Wayne. He was the author of several papers and held several patents in the image tube field.

He was a member of the Joint Electronic Devices Engineering Council, the Optical Society of America and the Electrochemical Society. He graduated from Ashland College in 1928 and received an MS degree in physics from Ohio State in 1929. He resided at 4315 Cadillac Drive, Fort Wayne.

General Dynamics/Electronics Advances Homer H. Smith

HOMER H. SMITH has been appointed assistant chief sales engineer

in charge of toll ticketing for the Telecommunication Division of General Dynamics/Electronics, according to T. C. Thompson, general manager of commercial sales for the div.

In this position Smith will work closely with the division's five branch

HOMER H. SMITH

offices in providing engineering assistance to customers on all toll ticketing sales.

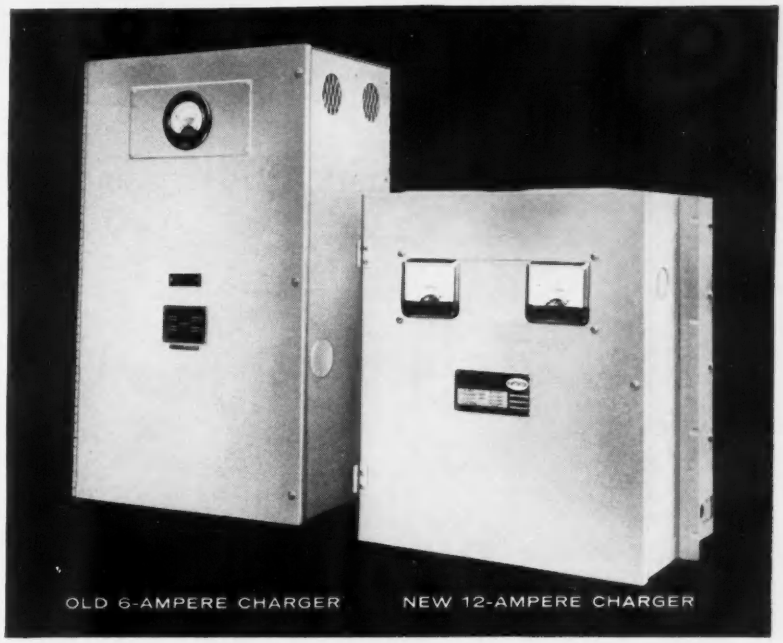
Automatic Electric Announces Organizational Changes

CHARLES F. FFOLLIOTT, director, product design, Automatic Electric Laboratories, Inc., has been appointed technical director of Automatic Electric International, Inc., at Geneva, Switzerland. He succeeds Dr. Imre Molnar, who is returning to the United States. Announcement of Dr. Molnar's new duties is expected shortly after his return.

F. E. Wood, formerly supervisor, electromechanical design, will become director of product design, and G. A. Borling, supervisor of relay and switch design, will be assigned Wood's former position.

Mr. Ffolliott is a graduate of Rensselaer Polytechnic Institute, where he received an E.E. Degree in 1927 and an M. S. in 1930. After three years of teaching and graduate work at Harvard University, he joined Automatic Electric in 1934, as assistant to the chief research engineer.

For the next five years he devoted much of his time to a comparative study of the technical and economic



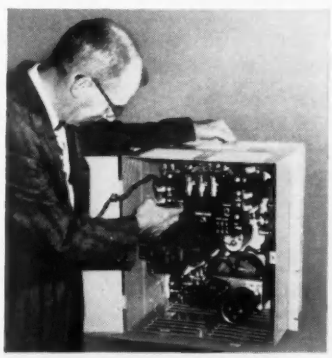
How telephone battery chargers have changed!

Twice the power, half the size!

Yes, these new Raytheon silicon battery chargers pack twice the battery charging capacity in half the space. But that's not all. They also provide excellent regulation (±1%) and noise-free output (30-millivolt filtering) with improved dependability.

These new solid-state designs use fewer components, minimizing possibility of failure through simplified design. They utilize conservatively rated silicon rectifiers which are non-aging and have extremely low power losses. In your exchanges, this means:

- greater operating efficiency
- longer life
- no adjustments
- space-saving advantages



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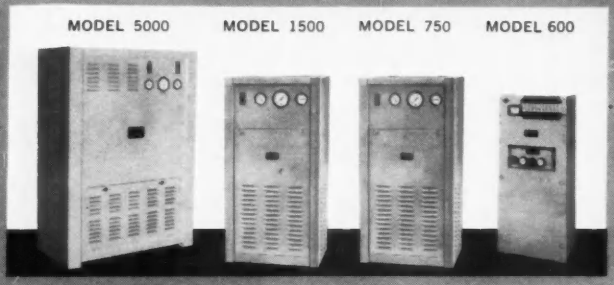

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PUREGAS Air Dryers are fully automatic, complete units – each meticulously tested before delivery.

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Capacity	600 to 5000 cu. ft.
Delivered Air Humidity	under 2% at 70°F.
Delivered Air Pressure	0 to 15 psig, adjustable

Automatic Safety Controls:
Adjustable high and low pressure alarm.
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These Air Dryers are simple to install and relatively maintenance free because they have only one moving part in the airdrying circuit – the refrigeration compressor.

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- *"Meter Panels for Continuous Feed Pressure Systems"*

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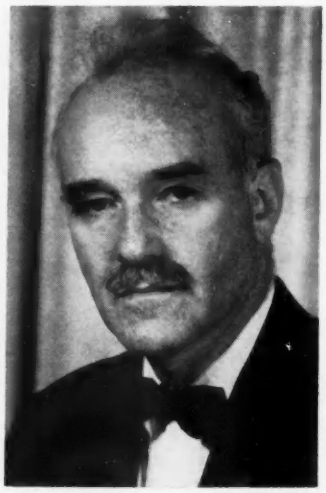
features of various basic telephone switching systems; he became assistant to the Laboratories' president in 1939, technical director in 1940, and director of product design in 1947. In this position he has been responsible for the development of telephone station apparatus, power, signaling and transmission equipment, relays and switches, recording apparatus,



CHARLES F. FFOLLIOTT

and printed wiring, and has directed all mechanical and environmental testing.

A native of Nebraska, Wood received his B. S. in M. E. from the University of Nebraska in June, 1930, and joined Automatic Electric on July 1. Following brief experience as an installer, he entered the engineering inspection department, where he was involved in the development of production techniques to improve product quality.

In 1937, Wood was transferred to the Laboratories organization, and two years later he became supervisor of electromechanical design. In this position he has been responsible for the development of Type 80 and other telephones, and for improvements and new designs in relays, switches, dials, and associated products; his name appears, as sole or co-inventor, on 31 patents.

Borling is a graduate of Illinois Institute of Technology, where he received his B. S. in E. E. in 1948. Immediately upon graduation he joined Automatic Electric as a student en-

gineer. In 1950 he was transferred to the Laboratories, where he worked directly under Wood in the development and improvement of switches, relays, ringers, and a wide variety of similar products. Since 1958 he has occupied the position of section leader with specific responsibility for developmental activity in these areas.

Dr. Molnar's associatoin with Automatic Electric began in Europe in 1930 — the same year he received his degree in communication engineering from the University and Institute of Technology in Berlin. He was transferred to the home office of Automatic Electric in 1937, and received his Ph. D from Northwestern University in 1950.

Dr. Molnar was one of a group of six Americans who in 1959 spent a month inspecting a cross-section of Russian plants and laboratories under the sponsorship of the Electronic Industries Association and the U. S. Department of State. Prior to his assignment to Automatic's international affiliate in 1959, Dr. Molnar was director of telephone switching systems development in Automatic Electric Laboratories.

Novakowski Appointed USI Chief Telephone Engineer

UNITED STATES Instrument Corporation has announced the appointment of Robert Novakowski of Elkhart, Indiana, as chief teelphone engineer.

At the same time, it was announced that Leon Barry would fill the position of Chief Product Engineer. In this capacity, Barry will be responsible for all industrial and military products of the Corporation.

Novakowski, 37, a native of Chicago and USAF veteran, formerly served with Henkels & McCoy and North Electric Company in major engineering capacities.

Power Equipment Announces Marketing Expansion Plans

W. H. GRAHAM, vice president and general manager of Power Equipment Co., a subsidiary of North Electric Co., Galion, Ohio, has announced a major expansion in the company's sales force. The move is aimed at

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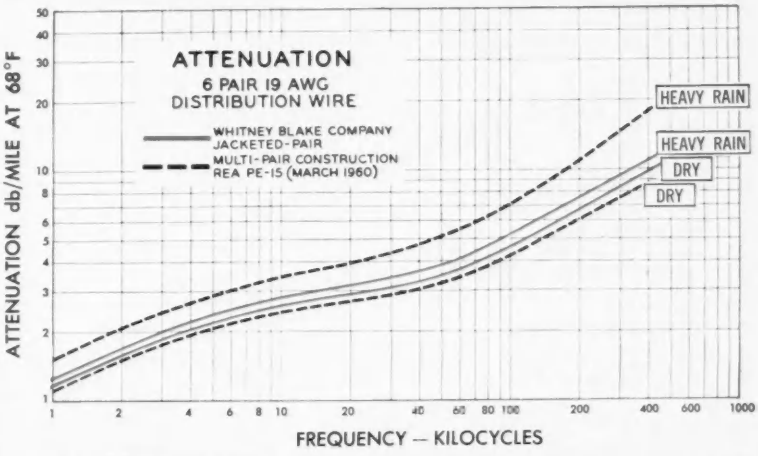
JACKETED-PAIR now makes possible the use of carrier equipment as a result of the relatively small change and low level of attenuation. For example, at 400 kilocycles, the attenuation for PE-15 type increases106% from dry to heavy rain while JACKETED-PAIR increases only 12% at this frequency.



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William E. Reagan has been appointed field sales manager, reporting to Graham. His responsibilities include supervision and training of the company's field sales force, as well as sales promotional activities. Reagan was with the Hermetic Seals Div. of Phillips Control Corp., where he served as sales manager. He earlier served as electronics division field sales engineer in the Middle-Atlantic states for North Electric Co.

Edward J. McQuade continues as Western regional sales manager, directing the sale of company products in the Western states. He has served this area since 1957.

William T. Brummet moves to the West Coast as sales engineer, reporting to McQuade. Brummett has, until recently, been headquartered in the home office as a sales engineer.

Charles Schuster was recently promoted to the post of Midwest regional sales manager after working for several years as field sales engineer with North Electric Co. He will locate in the Twin Cities area, and will be responsible for sales in the Upper Midwestern states.

Charles Rich was named Eastern regional sales manager, and will be responsible for sales coverage in the Eastern United States, including special house accounts in that area. He brings to the company over 10 years of sales and management experience with the Minneapolis-Honeywell Regulator Co.

Morgan Richards is based in New York state as sales engineer, reporting to Rich. His sales and computer engineering background includes experience with the Radio Corp. of America and Goodyear.

E. Joseph Seppala continues in his present post as special accounts manager under management assignment in the Eastern United States until June. He will then become product manager for a special new product group with offices in Galion.

Graham also announced promotion of James L. Green to the position of technical sales manager. Green has been associated with Power Equipment since 1954, having served both as house account representative and sales engineer. He will report directly to Graham in his new capacity.

Motorola Names Four Regional Sales Managers

MOTOROLA Communications & Electronics, Inc., has announced the appointment of four new regional sales managers and the establishment of three new urban offices.

The appointees and their headquarters are: Chester L. Pringle, who moves to Denver from a similar position in West Texas; Glenn A. Froberg in Indianapolis; Ira Walker in Memphis; and Paul E. Russum in Motorola's Southern Area headquarters in Dallas. Denver, Indianapolis, and Memphis are new home cities for the Motorola sales organization.

Each of the new appointees supervises the sale of two-way radio and other communications products in multi-state areas. Creation of the new regions is part of a nationwide Motorola expansion program to extend sales and service facilities for better customer service.

Pringle, now in charge of the sales region centered in Denver, has been with Motorola for more than 16 years. He previously held a similar sales manager post at Midland, Texas. Pringle joined the sales organization in 1954 after working as a production engineer in Motorola's Chicago plant. He attended the University of Iowa.

Froberg, in Indianapolis, joined Motorola 10 years ago as an Industrial Engineer. Prior to his promotion, he was sales manager in the Madison, Wisconsin, area. He is a graduate of Northwestern University.

New Regional Sales Manager in Memphis, Ira Walker, had been an account executive for Motorola in the Southern United States with headquarters in Baton Rouge, La. Walker is a graduate of Southern Methodist University.

Russum's headquarters will be Motorola's Southern office in Dallas, Texas. He had previously been a zone sales manager in the Dallas-Fort Worth area. He attended the University of Texas.

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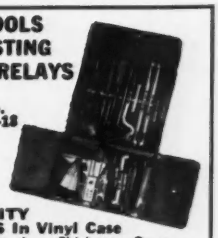
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WILLIAM V. KAHLER (right), president of Illinois Bell Telephone Co., Chicago, receives Washington Award — one of nation's top honors for engineers. Kahler received the award at a March 2 banquet in the Furniture Club of America. RAYMOND D. MAXSON president of the Western Society of Engineers, presents the plaque to Kahler.

THE BACK OF THE BOOK

By JOHN G. REYNOLDS

Bill Kahler Receives Washington Award

LAST MONTH the head of the company that keeps TE&M's telephones working efficiently, William V. Kahler, president of Illinois Bell Telephone Co. urged five leading professional engineering societies to volunteer counsel to President Kennedy and Congress in technical assistance programs, and suggested that retired engineers might be tapped for leadership in technical phases of the President's peace corps and other foreign aid operations.

The telephone company executive spoke before 600 persons in the Furniture Club of America, Chicago, at a dinner at which he was presented the 1961 Washington Award — one of the nation's outstanding honors for engineers — by Raymond D. Maxson, president of the Western Society of Engineers.

The award is conferred upon an engineer for "accomplishments which preeminently promote the happiness, comfort and well-being of humanity." Former President Herbert C. Hoover was the first recipient in 1919.

Kahler was chosen by the Washington Award Commission representing the Western Society of Engineers, American Society of Civil Engineers, American Institute of Electrical Engineers, American Institute of Mining, Metallurgical and Petroleum Engineers and American Society of Mechanical Engineers. Virgil E. Gunlock, chairman of the Chicago Transit Authority, is chairman of the commission.

Kahler, born on a Missouri farm, spoke on "Plowing a Straight Furrow," which he said meant "striving to meet the highest possible standards of excellence." He suggested that the five engineering societies form a joint committee "to volunteer guidance and counsel to the Administration and Congress in the selection of the best methods of rendering technical assistance abroad."

"The international field is fertile ground into which professional engineering societies might well sink their plowshares, and with their skills open up new areas in which freedom and respect for human dignity will flourish," he said.

Kahler pointed out that Presidents Eisenhower and Kennedy had often stressed the needs of underdeveloped nations. He also noted that Mr. Kennedy, in his State of the Union message, specifically included engineers among the people who could be mobilized in a national peace corps that would help foreign nations meet their needs for trained personnel.

"The underdeveloped nations, some of them newly born, are ill-equipped to face life in this era of ideological combat, exploding population and unequal distribution of technology," Kahler observed.

"Dollar aid alone won't solve their problems," he said. "The President, yesterday (March 1), established the Peace Corps on a temporary basis and has asked Congress for legislation to make it permanent. This calls for level-headed thinking by mature, down-to-earth people — and that certainly includes engineers — to insure that technical assistance of any nature will be administered economically. It must be offered and administered in a manner that will not only benefit the recipients, but the participants as well, so that the whole program will reflect credit upon our nation."

Kahler questioned the emphasis on youth in the peace corps.

"There is, at the other end of the age spectrum, a great and growing reservoir of talent in engineering and in other fields as well," he said. "I refer, of course, to those who have newly entered retirement. Many are vigorous and eager to keep busy. Their enthusiasm and skill could well be tapped to furnish leadership for technical and other phases of a foreign aid program. The elder statesmen of our profession could do much to help make the peace corps a goodwill army of capable technicians."

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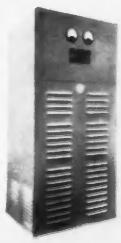

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